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The Outlook for Farm Commodity Program Spending, Fiscal Years 1989-1994

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THE OUTLOOK FOR FARM COMMODITY PROGRAM SPENDING, FISCAL YEARS 1989-1994

The Congress of the United States
Congressional Budget Office

NOTES

All years are fiscal years, unless otherwise noted.

Details in the text and tables of this study may not add to totals because of rounding.

A crop year (or marketing year) is the 12-month period beginning around the time of harvest. Crop years for major crops are:

Corn--September through August
Wheat--June through May
Rice--August through July
Cotton--August through July
Soybeans--September through August

Crop years are identified by the year in which they begin. For example, the 1989 corn crop year extends from September 1989 through August 1990. The dairy marketing year coincides with the fiscal year and is identified similarly--the 1989 dairy marketing year extends from October 1988 through September 1989.

Units of measure used for commodities in this study are:

Corn--one bushel = 56 pounds
Wheat--one bushel = 60 pounds
Rice--one hundredweight (cwt) = 100 pounds
Cotton--one bale = 480 pounds
Soybeans--one bushel = 60 pounds

Dairy product use and Commodity Credit Corporation net purchases are measured in pounds of milk equivalent, milkfat basis.

The cover photograph by John Collier, taken in 1942, is from the collections of the Library of Congress.

PREFACE

Outlays for Commodity Credit Corporation (CCC) farm price and income support programs have varied widely from year to year, depending as they do on such factors as the weather, agriculture and trade policies, the administration of U.S. farm programs, and conditions in worldwide commodity markets. This study provides detailed information about CCC outlays included in the Congressional Budget Office's (CBO's) most recent budget outlook. CBO's budget outlook is part of its annual report to the Committees on the Budget, which is required by law, and includes five-year outlay projections for the entire federal budget. In keeping with CBO's mandate to provide objective and impartial analysis, the report contains no recommendations.

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SUMMARY

The drought dominated agricultural news in 1988. It was a stark reminder of farming's risks and illustrates the difficulty of predicting future commodity production and prices, and farm program costs. Ironically, bad weather saves the government money. The Congressional Budget Office (CBO) estimates that the drought cut spending for the price and income support programs of the U.S. Department of Agriculture's Commodity Credit Corporation (CCC) by $6.4 billion during the 1988-1992 period. These lower outlays were partly offset by the $4.2 billion cost of drought relief financed through the CCC.

Actual CCC spending was $12.0 billion in 1988, down dramatically from the $22.3 billion of the previous year. CBO projects that 1989 spending under current law will rise to $12.4 billion and then decline to $11.2 billion in 1990.

The 1985 Food Security Act, which now governs farm programs, expires in 1990. The CBO baseline projects outlays through 1994, assuming that the policies and programs of this law continue through the 1994 crop year. The extension of current law could take several forms. In these baseline projections, CBO assumes that target prices, which are important determinants of direct payments to farmers, will decline in the years following 1990. Under these assumptions, outlays reach $11.3 billion in 1991 and decline to $5.8 billion by 1994 (see Summary Table 1).

An alternative assumption is that target prices are kept at their 1990 levels through 1994. The CCC programs cost more under this assumption; the difference grows to $3.5 billion by 1994 (see Summary Table 2). Spending still declines in the last years of the projection period, but at a more gradual rate than when target prices are assumed to decline.

The commodity programs of the CCC support farm incomes and stabilize prices of agricultural commodities. These programs are entitlements--that is, their spending is determined by program rules set by law and regulation rather than being controlled directly by

appropriations or Treasury borrowing limitations. As a result, CCC spending can vary widely from year to year, as it has in the recent past.

The baseline budget projections produced by CBO, of which these CCC projections are a part, show the likely course of federal spending if policies remain unchanged. The baseline is not a prediction of spending levels, because many changes in policies are likely to occur. But the baseline illustrates the consequences of current policy and serves as a benchmark for measuring the effects of proposed changes in the law.

The outlook for agriculture reported in this study was prepared in February 1989 and does not reflect recent developments and information. In particular, the damage of the drought to this year's winter wheat crop has been more severe than expected, and the cost of disaster assistance for last year's drought has been less than anticipated. CBO's projections will be updated in August to incorporate the most recent information.

SUMMARY TABLE 1. COMMODITY CREDIT CORPORATION OUTLAYS
(By fiscal year, in millions of dollars)

Commodity	Actual 1988	Projected 1989	1990	1991	1992	1993	1994
Corn and Other Feed Grains	9,053	2,968	5,482	6,112	4,870	3,546	2,616
Wheat	678	423	1,559	1,557	1,163	839	583
Rice	128	920	896	893	882	853	831
Upland Cotton	666	2,697	1,349	1,038	803	579	340
Soybeans	-1,676	-96	67	18	18	18	18
Other Commodities	761	252	677	687	680	607	544
Subtotal	9,610	7,164	10,030	10,304	8,416	6,442	4,932
Other Outlays	2,435	5,233	1,155	1,037	912	888	891
Total	12,044	12,397	11,185	11,341	9,327	7,330	5,823

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTE: "Other Commodities" includes peanuts, tobacco, honey, sugar, and dairy products.

SUMMARY TABLE 2. ALTERNATIVE BASELINE PROJECTIONS, WITH TARGET PRICES MAINTAINED AT 1990 CROP LEVELS IN LATER YEARS
(By fiscal year, in millions of dollars)

Commodity	Actual 1988	Projected 1989	1990	1991	1992	1993	1994
Outlays							
Corn and Other Feed Grains	9,053	2,968	5,482	6,435	6,002	5,291	4,750
Wheat	678	423	1,559	1,676	1,542	1,468	1,473
Rice	128	920	896	904	928	934	951
Upland Cotton	666	2,697	1,349	1,063	959	860	742
Soybeans	-1,676	-96	67	18	18	18	18
Other Commodities	761	252	677	687	680	607	544
Subtotal	9,610	7,164	10,031	10,782	10,129	9,178	8,479
Other Outlays	2,435	5,233	1,155	1,037	912	888	891
Total	12,044	12,397	11,185	11,818	11,040	10,066	9,370
Difference from the February 1989 CBO Baseline							
Corn and Other Feed Grains	0	0	0	323	1,132	1,745	2,134
Wheat	0	0	0	119	379	629	890
Rice	0	0	0	11	46	81	120
Upland Cotton	0	0	0	25	156	281	402
Soybeans	0	0	0	0	0	0	0
Other Commodities	0	0	0	0	0	0	0
Subtotal	0	0	0	477	1,713	2,736	3,547
Other Outlays	0	0	0	0	0	0	0
Total	0	0	0	477	1,713	2,736	3,547

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTE: "Other Commodities" includes peanuts, tobacco, honey, sugar, and dairy products.

SOME EFFECTS OF THE 1988 DROUGHT

The drought's devastating effects on crop production were first suspected in late spring and early summer, and then confirmed as the harvest approached. Hardest hit were the Midwest and the Northern Plains. Of the major supported commodities, the corn yield was about 29 percent below a year earlier and the soybean yield was down 20 percent. The spring wheat crop was hit especially hard--the yield per harvested acre was down 43 percent from the previous year. Abandonment of spring wheat plantings was higher than in earlier years; production per planted acre fell 54 percent from the level of a year earlier. However, the average yield per harvested acre of all wheat was down only 10 percent (14 percent per planted acre) because the winter wheat crop, which is normally between 70 percent and 75 percent of total production, was largely untouched. Other crops, and other parts of the country, were also affected. Livestock producers were hurt by poor forage conditions, a poor hay crop, and rising feed prices.

The drought strongly influences the near-term outlook for agriculture. In the drought-affected crops, stocks are down, prices are up, and acreage reduction requirements of federal programs have been relaxed--all good news for crop farmers. Much uncertainty surrounds the 1989 crop prospects. Reduced subsoil moisture in the spring wheat, corn, and soybean areas affected by last year's drought make the amount and timing of rainfall this spring and summer more critical. The CBO baseline assumes normal weather, but below-trend yields, for the wheat, feed grains, and soybean crops harvested in 1989.

In addition, mounting concerns about dry weather in winter wheat states and winter-kill of this crop because of lack of snow cover during very cold weather make the size of the winter wheat harvest hard to predict. Last year's winter wheat crop was largely unaffected by the drought; dry weather actually helped the harvest in some areas.

The drastic reduction of total grain stocks now taking place would mean that 1989 weather problems, even if less severe than in 1988, could have greater effects on total use and market prices. The 1988 stock cushion--mostly government-owned or -controlled grain acquired in price support operations in earlier years--helped keep total use of corn and wheat near the levels of a year earlier despite the production shortfalls. The same cushion would not be available for 1989.

Large increases in planted acreage expected this year lessen the likelihood of production shortfalls. Much lower acreage reduction requirements in the crops affected by the drought, and the higher expected prices, are causing the area planted to wheat, feed grains (corn, sorghum, oats, and barley), and soybeans to rise from 226 million acres in 1988 to an estimated 252 million in 1989.

The longer term is, as always, even more uncertain. For the 1990 and later crops, the CBO baseline assumes that crop yields return to their long-term trends. The 1988 drought may have some lasting effects. For example, most of the excess corn stocks that would have taken several years to work down, will be gone by the time the 1989 crops are harvested. In the CBO baseline, stocks do not return to the burdensome levels of recent years. However, history has shown that stock levels can change very quickly. The 1988 drought has by no means necessarily solved the problem of surplus stocks. Several years of better-than-average weather and low government acreage reduction programs could create surpluses, as has happened in the past.

In addition to the improved near-term outlook for commodity prices and the less restrictive acreage reduction programs expected for the drought-affected crops, the drought has had other direct or indirect effects on farmers and farm policy. These include:

Less USDA Discretion to Affect Market Prices. Because government-owned grain stocks are down, the U.S. Department of Agriculture (USDA) has less ability to affect prices within the marketing year by controlling the rate of release of government grain. Marketing of CCC stocks, mostly through exchanges for generic commodity certificates (see Glossary), has strongly influenced commodity prices during the past several years. Without the stocks, this ability to affect--some would say "control"--market prices is gone.

Changing Effects of the Conservation Reserve on CCC Programs. The interactions of the Conservation Reserve Program (CRP) and the CCC's price and income support programs are changing. During the first few years of the CRP, excess stocks and production capacity meant that land removed from production under the program advanced the goals of the CCC. Production had to be discouraged by idling farmland, given the farm programs and market conditions of the time, and the

CRP was a way to reduce plantings while also pursuing soil conservation objectives.

However, with stocks now depleted and demand strong, the vast amount of land enrolled in the CRP could hinder the ability of the Secretary of Agriculture to encourage added production. Another short crop or an unexpected surge in world demand--neither are included in the CBO baseline--would bring much of this land back into production were it not retired under the long-term contracts. Some analysts argue that the CRP might limit the ability of U.S. agriculture to realize its comparative advantage in farm production. Others, however, claim that the benefits of conserving topsoil would outweigh the costs of reducing available supplies of grains and oilseeds.

Less Budgetary Pressure for International Trading Reforms. The drought may also be affecting the outcome of the multilateral trade negotiations now being conducted by members of the General Agreement on Tariffs and Trade (GATT). In 1986, when the current four-year round of talks began, world prices were low, and the budgetary costs of the agricultural programs of the United States and the European Community were very high. The budgetary pressures that then encouraged negotiations and improved prospects for liberalizing agricultural trade are now much diminished, reducing the prospects for real reforms.

Changing Focus in Farm Policy. The drought may also affect future farm policy. New legislation is expected when the Food Security Act of 1985, which now governs the farm programs, expires in 1990. Drought-related reductions in CCC outlays may reduce the pressure for program reforms, though budgetary costs will probably still play an important role in limiting program changes.

The depletion of stocks may also cause policymakers to focus on what are appropriate stock levels, who should hold them, and how they should be financed. The 2.5 billion-bushel reduction in corn stocks and the 700 million-bushel reduction in wheat stocks now occurring are keeping use close to the previous year's level even though production fell sharply. Stocks of these crops, much of which were acquired in government price support activities of earlier years, were at levels considered burdensome and costly. Without them, prices would have risen far more than they did. The domestic livestock industry would have

been hurt significantly had the large corn stocks not been available. Profitability would have fallen, production would have declined, and consumer meat prices would have risen substantially.

Holding stocks is costly and, at some point, the costs outweigh the benefits. The CBO baseline does not assume that the USDA builds stocks to guard against future shortages, except that the Food Security Wheat Reserve is restored to its minimum 143 million-bushel level following the harvest of the 1989 crop.

The appropriate form of federal disaster relief is another policy issue raised by the drought. The regular price and income support programs of the CCC dampen the effects on farmers' incomes of changes in market prices, but not of changes in production. The drought caused prices to rise, and CCC program payments fell. Farmers with normal production gained from the market as much or more than they lost from smaller federal payments. Farmers with poor crops, however, may have seen both market receipts and government payments fall. Ironically, one of the effects of the drought on farmers' financial well-being, and a rationale for federal aid, was that government payments fell.

The Disaster Assistance Act of 1988, enacted in August, provides aid to producers of all commercial crops severely hit by the drought and other natural disasters. This is a one-year program--applying only to crops harvested during 1988. Natural disasters affect U.S. agriculture somewhere virtually every year. The 1988 legislation was written to address the extremely severe and widespread effects of the very unusual 1988 weather. It is not a permanent program.

Federally subsidized crop insurance is intended to be the program providing federal help to farmers with weather-related production losses. The program now suffers from low enrollment for several reasons, including, some say, that the expectation of federal aid such as was provided in 1988 discourages participation. A commission is now investigating ways to improve the program.

THE OUTLOOK FOR THE MAJOR COMMODITIES

The residual effects of the drought dominate the near-term outlook for wheat and corn. As mentioned previously, market prices are far higher and stocks lower than they would have been otherwise. Market prices are projected to fall as the 1989 crop is harvested. In later years for all crops, assumed levels of demand slowly increase and nominal market prices gradually rise. Summary Table 3 shows projected supply, use, and prices for major supported commodities.

Corn benefits from the drought in that the large stocks--4.3 billion bushels were in storage at the end of August 1988--are now being used to satisfy domestic and export needs. CBO projects stocks at the end of the 1988 crop year (August 1989) to be 1.7 billion bushels, a level that many consider adequate. This year's corn prices are higher than in the recent past--now projected at $2.55 per bushel, compared with $1.94 for the 1987 crop and $1.51 for the 1986 crop. But prices are sharply lower than they would have been without the 2.6 billion bushels available from stocks.

CBO projects corn prices for the 1989 crop year (beginning September 1989) to fall back to the $2.00 per bushel range and remain there for several years before slowly climbing to $2.15 per bushel for the 1994 crop. Projected ending stocks (stocks remaining at the end of the crop year) rise and remain at 2 billion bushels. Improved yields cause most of the production increases over the period. Rising domestic use and exports match the production growth.

The 1988 wheat crop year (beginning June 1988) started with lower surplus stocks than corn, caused in part by a surge in the demand for wheat exports the previous year. Spring wheat production was severely cut by the drought, but yields of winter wheat, which is about 75 percent of all wheat, were at trend levels or better.

As with corn, wheat stocks are being used to keep total use near last year's level. This marketing year began with 1.3 billion bushels on hand and will end with about 550 million bushels in storage, the lowest level since 1974. Barring unforeseen weather problems, production is expected to exceed use over the projection period, eventually

SUMMARY TABLE 3. SUMMARY OF PROJECTED SUPPLY AND USE OF MAJOR SUPPORTED COMMODITIES (By crop year)

	1988	1989	1990	1991	1992	1993	1994
Corn (In billions of bushels)							
Production	4.92	7.86	8.16	8.26	8.40	8.55	8.68
Exports	1.93	1.89	1.96	2.03	2.10	2.17	2.26
Total Use	7.47	7.74	8.02	8.25	8.40	8.55	8.70
Ending Stocks	1.72	1.84	1.98	2.00	2.00	2.00	1.98
Price (Dollars per bushel)	2.55	2.01	1.99	2.01	2.08	2.13	2.15
Wheat (In billions of bushels)							
Production	1.81	2.46	2.54	2.61	2.67	2.71	2.76
Exports	1.50	1.36	1.43	1.47	1.51	1.56	1.60
Total Use	2.55	2.44	2.53	2.59	2.65	2.71	2.77
Ending Stocks	0.55	0.59	0.62	0.66	0.70	0.72	0.73
Price (Dollars per bushel)	3.67	2.50	3.26	3.27	3.37	3.33	3.37
Rice (In millions of cwt)							
Production	159.5	157.2	167.5	174.7	178.9	185.6	186.8
Exports	74.1	77.7	80.7	82.6	83.9	85.3	86.4
Total Use	158.0	164.9	171.2	176.6	181.7	186.8	191.8
Ending Stocks	36.1	32.0	31.7	33.3	34.0	36.3	34.9
Price (Dollars per cwt)	6.00	5.50	5.25	5.30	5.40	5.50	5.60
Cotton (In millions of bales)							
Production	15.1	13.0	12.8	12.9	13.1	13.4	13.6
Exports	4.9	6.2	6.2	6.6	6.7	6.8	6.9
Total Use	11.7	13.2	13.4	13.8	14.0	14.2	14.3
Ending Stocks	9.1	8.9	8.3	7.5	6.5	5.6	4.9
Price (Dollars per pound)	0.485	0.496	0.517	0.521	0.549	0.560	0.587
Soybeans (In billions of bushels)							
Production	1.54	1.97	1.90	1.94	1.97	2.00	2.05
Exports	0.56	0.67	0.68	0.70	0.72	0.73	0.75
Total Use	1.70	1.86	1.89	1.94	1.97	2.01	2.05
Ending Stocks	0.14	0.25	0.26	0.26	0.26	0.26	0.26
Price (Dollars per bushel)	7.52	5.56	5.59	5.49	5.51	5.54	5.49
Dairy Products (In billions of pounds)							
Production	144.1	145.7	148.8	151.5	152.3	153.8	156.7
Commercial Use	136.0	138.5	141.2	143.9	146.5	149.2	151.7
CCC Removals[a]	9.1	6.8	7.9	8.0	6.2	5.0	5.4
Price Support[b] (Dollars per cwt)	10.60	10.60	10.10	9.60	9.10	9.10	9.10

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTE: cwt = hundredweight.

a. Removals refer to net government purchases of dairy products for the purpose of supporting the farm price of milk.

b. Price support in effect for the 12 months following January 1 of each year, except for 1989. For April through June 1989, the support price rose to $11.10 per cwt.

raising stocks to 725 million bushels. Projected market prices are $3.67 per bushel during the 1988 crop year and then to fall to $3.26 the next year as the tight stock situation eases. These prices are far higher than the actual 1987 crop season average of $2.57 per bushel.

The federal wheat program required idling 27.5 percent of base acreage in the 1988 crop year. This dropped to 10 percent for the crop being harvested in 1989. CBO projects a further reduction to 5 percent for later years. Though the annual acreage reduction requirement is small, the CRP is projected to take nearly 10 million acres of wheat land out of production by 1990.

Cotton and rice were largely unaffected by the 1988 drought. Unlike the other supported crops, both cotton and rice face falling market prices and rising stocks. In cotton, larger-than-expected foreign production and weak domestic demand have pressured prices. This season's projected farm price is 48.5 cents per pound, compared with 63 cents per pound last year. The Secretary of Agriculture has responded to worsening market conditions by doubling the acreage reduction requirement in the 1989 cotton program to 25 percent. CBO assumes this same acreage reduction requirement, the legal maximum, to be in effect through 1994.

A large U.S. rice crop has pushed prices lower and stocks higher. The projected 1988 crop year price is $6.00 per hundredweight (cwt) compared with $6.95 last year. CBO assumes that the growth in demand will allow the acreage reduction requirement--set at 25 percent of base acreage for the 1988 and 1989 crops--to fall in later years.

Domestic supply and use factors and the federal price support level dominate dairy program spending. The Food Security Act of 1985 requires annual cuts in the milk price support level if USDA forecasts excessive government purchases of dairy products. The Disaster Assistance Act of 1988 eliminated the January 1989 reduction and causes the support level to increase by $0.50 per cwt during the three-month period beginning in April 1989. The CBO baseline assumes that the support price drops in January 1990. Baseline projections also assume reductions in 1991 and 1992, but relatively low government purchases in later years requiring no further cuts in support prices.

OTHER ASSUMPTIONS BEHIND THE BASELINE PROJECTIONS

The nature of the farm programs requires that a broad range of assumptions be made when projecting future spending. Other assumptions underlying the CBO baseline projections are:

- General Economic Conditions. Domestic and international economic conditions affect markets for agricultural products and, thus, CCC outlays. The growth of income here and abroad, the inflation rate, and the value of the dollar all affect domestic and foreign demand for U.S. production, market prices, and CCC outlays. CBO's annual report discusses in detail the assumed economic conditions underlying the CCC outlay baseline. Generally, CBO forecasts modest growth for the U.S. economy, a continued declining value of the dollar, and strong growth in income among developing countries who are trading partners of the United States. This outlook is good for U.S. agriculture.

- Trade and Agricultural Policies of Other Nations. The baseline assumes no major changes in the trade or farm policies of foreign customers or competitors. The GATT talks now under way may eventually affect agricultural and trade policies of GATT-member countries, including the United States. Also, bilateral negotiations or unilateral actions by other countries may lead to changes in the trading environment that would affect the outlook for U.S. exports and CCC outlays. This baseline assumes no such changes.

- Secretarial Discretion. The Secretary of Agriculture has broad discretion to set certain features of farm programs. For instance, the Secretary determines the sizes of unpaid acreage reduction programs within bounds provided in the law, decides whether to offer paid acreage diversion programs, and can set nonrecourse loan rates (price support levels) within prescribed limits. The strategy used by the Secretary to run the programs has a strong influence on prices for some crops and, thus, on CCC outlays. CBO assumes that programs will function to maintain relatively low, competitive prices in domestic and international markets.

TRADE NEGOTIATIONS, FARM POLICY, AND FARM SPENDING

The CBO baseline assumes that current U.S. farm policy remains in place through the projection period and that other nations' farm and agricultural trade policies do not change in ways that would materially alter trade flows. The current multilateral trade negotiations sponsored by the GATT--the Uruguay Round--could influence the future of U.S. domestic farm and export promotion policies, access of U.S. exports to foreign markets, and competition in world markets from government-subsidized grain.

An international agreement to liberalize agricultural trade could affect U.S. farm policy, farm program spending, the agricultural sector, and the economy. Liberalizing agricultural trade in this context would mean eliminating or reducing export subsidies and barriers to market access, as well as eliminating or reducing trade-distorting domestic production or consumption subsidies or taxes. Agreeing to discuss the trade effects of domestic farm programs--including deficiency payments and price supports in the U.S. case--was an important and critical step in these international talks. Even agricultural policies that are not intended to affect international markets often significantly distort trade.

The goal of the U.S. Administration in the GATT talks has been the complete elimination of agricultural subsidies. That proposal, a highly unlikely outcome, includes a transition period that would not be completed until well after the current five-year CBO baseline projection period. But the transition from current policies to a more liberal international trading environment could begin during the projection period. This paper discusses an analysis of a transition program prepared for the December 1988 GATT talks in Montreal as an example of how a transition might affect U.S. farm policy.

The major conclusions of CBO's examination of liberalizing agricultural trade are:

- Liberalizing agricultural trade would benefit the U.S. economy and the economies of other industrialized nations (where agricultural sectors are the most protected).

- Changing U.S. policies to comply with a trade liberalization agreement could lead to reductions in farm income and increase pressure for some farmers to leave agriculture. The effects on the farm sector and on federal spending for agriculture depend on what policies, if any, replace current programs.

- An agreement to liberalize trade would be consistent with the current direction of U.S. farm policy, which has emphasized greater market orientation by reducing price supports and subsidies.

- The adjustment costs borne by U.S. agriculture would be much lower if other countries agree to increase their market orientation as well.

- Commodities that now benefit from higher levels of protection in the United States--for example, sugar and dairy products--would face more dramatic adjustments if trade is liberalized.

CHAPTER I

AN OVERVIEW OF COMMODITY CREDIT CORPORATION OUTLAY PROJECTIONS

Under current law, the Congressional Budget Office (CBO) projects that farm commodity program costs will rise slightly to $12.4 billion in 1989 and then decline to $11.2 billion in 1990.[1] Since the mid-1980s, a time of great hardship for U.S. agriculture, reduced federal support and improving world markets have substantially lowered farm program outlays. Farm program spending dropped to $12 billion in 1988, $10 billion less than in the previous year and the lowest level since 1984. Part of the decline (about $2.8 billion) resulted from the drought in the summer of 1988, but even with normal weather, the drop in spending would have been large.

The current recovery in the farm sector could be fragile. Farmers' incomes still depend heavily on government payments, and are subject to wide swings caused by unpredictable weather and world market conditions. Some areas are experiencing a continuing drought, but, on the whole, farmers are faring better than they were several years ago. Prices are up, demand is strong, land prices are rising again, and farm costs have been trimmed, principally because interest costs have declined--farm debt has been reduced by 25 percent since 1983.

THE CBO BASELINE

The program costs cited above are those of the Commodity Credit Corporation (CCC)--the agency in the U.S. Department of Agriculture (USDA) that finances farm price and income support programs.[2]

1. Estimates are in current dollars unless otherwise noted. Wool program outlays, which appear in a separate budget account, are excluded. Cash costs of the Conservation Reserve Program, which were included in the CCC account through 1987, are now in a separate budget account.

2. The U.S. government also supports agriculture through research, education, subsidized insurance and credit, soil conservation, and other programs. CCC costs are nearly two-thirds of all federal spending for agriculture.

These sizable agricultural expenditures and the programs that generate them are now governed by the Food Security Act of 1985. The major tools of current programs are described in Box 1 on page 4. (Further definitions of special terms associated with the farm programs can be found in the Glossary.) The CBO baseline projects outlays through 1994 assuming that the policies and programs of the Food Security Act, which expires in 1990, continue through the 1994 crop year.

One key assumption affecting the projections is the future path of target prices, which are specified in the act through 1990. The target price assumptions significantly affect outlay projections because deficiency payments in the wheat, feed grains, cotton, and rice programs are based on the difference between target prices and market prices. Deficiency payments are the main form of direct government payments to farmers and account for a majority of all CCC outlays.

Target prices decline for wheat and feed grains during the last three years of the 1985 act (1988 through 1990) and during the last four years for rice and cotton (1987 through 1990). The CBO baseline assumes that target prices continue to decline from 1991 to 1994. Under these assumptions, outlays reach $11.3 billion in 1991 and decline to $5.8 billion by 1994 (see Table 1).[3]

An alternative baseline--assuming frozen rather than declining target prices after 1990--has been used by the Budget Committees for the fiscal year 1990 budget resolution. Under this alternative assumption, target prices are higher during the 1991-1994 period than they are in the CBO baseline. Outlays for crop programs are higher as well (see Table 2). Outlays still fall over the period, but at a more gradual rate than in the CBO baseline. Outlays fall because market prices are assumed to rise very gradually over the period, causing deficiency payments to decline. The outlay difference between the two projections grows to $3.5 billion by 1994.

CCC spending receives much notice because it is relatively large, quite volatile, and, because it is an entitlement program, subject to limited control in the current year. Farm program spending has grown dramatically during the 1980s, a time when many other programs

3. Outlay projections in this report are contained in the February 1989 Congressional Budget Office budget baseline.

have faced reductions or slow growth. Partly because of this, these programs are often mentioned as a source of savings to achieve deficit reduction goals. This study describes the assumptions used to prepare CBO's February 1989 baseline for CCC outlays. Besides the particular

TABLE 1. COMMODITY CREDIT CORPORATION OUTLAYS
(By fiscal year, in millions of dollars)

Commodity	Actual 1988	Projected 1989	1990	1991	1992	1993	1994
Corn and Other Feed Grains	9,053	2,968	5,482	6,112	4,870	3,546	2,616
Wheat	678	423	1,559	1,557	1,163	839	583
Rice	128	920	896	893	882	853	831
Upland Cotton	666	2,697	1,349	1,038	803	579	340
Soybeans	-1,676	-96	67	18	18	18	18
Peanuts	7	5	4	4	4	4	4
Tobacco	-453	-569	-280	-90	39	11	18
Honey	100	60	55	50	45	40	36
Sugar	-247	0	0	0	0	0	0
Dairy	1,295	718	859	688	557	517	451
Other Commodities	59	38	39	35	35	35	35
Subtotal	9,610	7,164	10,030	10,304	8,416	6,442	4,932
Disaster Payments	31	4,100	0	0	0	0	0
Export Guarantee Claims	243	166	160	168	135	135	117
Direct Export Loans	-50	-42	-46	-44	-43	-60	-64
Storage Facility Loans	-41	-18	-5	-2	0	0	0
Operating Expenses	621	590	643	643	643	643	643
Changes in Working Capital	1,361	0	0	0	0	0	0
Other (Including P.L. 480 Adj.)	-125	154	119	50	44	42	43
Interest Payments	963	549	621	507	383	338	298
Interest Receipts	-568	-266	-338	-285	-250	-210	-146
Total Outlays	**12,044**	**12,397**	**11,185**	**11,341**	**9,327**	**7,330**	**5,823**

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

BOX 1
MAJOR FARM PROGRAM TOOLS

The main objectives of the Commodity Credit Corporation programs are to support the incomes of farmers, stabilize prices of farm commodities, and encourage U.S. agricultural exports. The primary tools used are deficiency payments, market price supports (nonrecourse loans and direct purchases), marketing loans, reductions in planted acreage, and export subsidies.

Deficiency Payments. Deficiency payments are direct federal payments to producers that participate in CCC programs for feed grains, wheat, rice, and cotton. Deficiency payments are generally calculated as the difference between the crop's *target price* (specified in the law) and the higher of the market price or the nonrecourse loan rate and are paid on the product of the producer's program yield and the number of acres planted to the crop. *Program yield* is now set for each farm, based on an average of past yields; the number of acres planted to the crop is typically constrained by other components of the program. Deficiency payments are direct income supplements and are also regarded by some as production subsidies that may encourage farmers to plant more of a crop than they would if only returns from the market sales were being considered.

CCC programs normally require some land to be taken out of production without payment. Thus, some portion of deficiency payments may be regarded as compensation for agreeing to reduce production.

Market Price Supports. *Nonrecourse loans* are used to support market prices in the feed grains, wheat, and soybean programs. Participating producers may pledge all or part of their crop as collateral for a CCC loan. The gross amount of the loan equals the product of the amount of the crop pledged and the nonrecourse loan rate, which varies by crop and by year. Nonrecourse loans support the market price at or around the nonrecourse loan rate because producers have the option of forfeiting the loan collateral to the CCC if the market price is not high enough to make it profitable for them to repay the loan and sell the crop. Producers benefit from nonrecourse loans because they are assured a minimum price for their crop, they receive credit at subsidized rates, and these loans allow them to market their crops at the most profitable time.

Direct government purchases are also used to support market prices. Direct purchase of dairy products is the primary means used by the CCC to support the farm price of milk. Direct purchases may be made in other crops, but the nonrecourse loan is the primary form of price support in other crops. Forfeitures of nonrecourse loans have effects on market prices that are very much like those of direct purchases.

Marketing Loans. Producers in the cotton, rice, and honey marketing loan programs may repay their nonrecourse loans at per-unit rates based on world market prices (which may be less than the nonrecourse loan rates at which the loans were issued). Marketing loans allow market prices to be determined by world supply and demand conditions rather than domestic nonrecourse loan rates, making these commodities more competitive on world markets. The per-unit benefit to farmers--the difference between the nonrecourse loan rate and the loan repayment rate--is similar to a deficiency payment.

Reductions in Planted Acreage. Producers participating in CCC programs typically must reduce their plantings by devoting some portion of their acreage to a conserving use rather than planting it to the program crop. *Acreage Reduction Programs* are required components of crop programs for which no direct compensation is received. *Paid Land Diversion Programs* are voluntary under current law. In paid programs, producers are compensated for removing some additional portion of their land from production. The purpose of these programs is to limit excess production, support market prices, and limit government costs (deficiency payments and marketing loan benefits are not paid on land idled under these two programs).

Acreage Reduction and Paid Land Diversion programs are determined annually. The Conservation Reserve Program is a long-term acreage retirement program that pursues resource conservation goals but which also has effects on production that are similar to those of the annual programs.

Export Subsidies. The *Export Enhancement Program* and federal guarantees of export loans promote exports of U.S. commodities by providing favorable prices or credit terms. The program began in 1985 and has mostly been used to encourage exports of wheat. In addition to specific export promotion programs, the marketing loan programs in cotton and rice and the reductions in nonrecourse loan rates, all included in the Food Security Act of 1985, have made U.S. commodities more competitive on world markets.

Other CCC activities also affect market prices and producers' returns. The *Farmer-Owned Grain Reserve Program* pays farmers for storing wheat or feed grains. The farmer-owned reserve was designed to stabilize prices--grain in the reserve becomes freely available to the market only when prices rise above prescribed release prices. Farmers may now exchange generic commodity certificates for grain in the farmer-owned reserve, but incentives to do so, particularly because of the loss of the federal storage payment, are not strong.

Releasing CCC-owned grain stocks through sales or exchanges for generic commodity certificates has become an important form of government intervention in the commodity markets. Cash sales are not permitted at current and expected price levels, but exchanges for certificates, which act very much like cash sales, are allowed.

policy assumptions, the baseline projections depend on assumptions about how programs are run, how farmers respond to program changes, and on the weather, commodity markets, and general economic conditions here and abroad.

TABLE 2. ALTERNATIVE BASELINE PROJECTIONS, WITH TARGET PRICES MAINTAINED AT 1990 CROP LEVELS IN LATER YEARS (By fiscal year, in millions of dollars)

Commodity	Actual 1988	Projected 1989	1990	1991	1992	1993	1994
Outlays							
Corn and Other Feed Grains	9,053	2,968	5,482	6,435	6,002	5,291	4,750
Wheat	678	423	1,559	1,676	1,542	1,468	1,473
Rice	128	920	896	904	928	934	951
Upland Cotton	666	2,697	1,349	1,063	959	860	742
Soybeans	-1,676	-96	67	18	18	18	18
Other Commodities	761	252	677	687	680	607	544
Subtotal	9,610	7,164	10,031	10,782	10,129	9,178	8,479
Other Outlays	2,435	5,233	1,155	1,037	912	888	891
Total	12,044	12,397	11,185	11,818	11,040	10,066	9,370
Difference from the February 1989 CBO Baseline							
Corn and Other Feed Grains	0	0	0	323	1,132	1,745	2,134
Wheat	0	0	0	119	379	629	890
Rice	0	0	0	11	46	81	120
Upland Cotton	0	0	0	25	156	281	402
Soybeans	0	0	0	0	0	0	0
Other Commodities	0	0	0	0	0	0	0
Subtotal	0	0	0	477	1,713	2,736	3,547
Other Outlays	0	0	0	0	0	0	0
Total	0	0	0	477	1,713	2,736	3,547

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTE: "Other Commodities" includes peanuts, tobacco, honey, sugar, and dairy products.

One of the most important factors affecting the future path of farm program spending is the nature of the legislation that will be in force when the Food Security Act of 1985 expires. The outcome of the current international negotiations on agricultural trade, in which the United States is urging the members of the General Agreement on Tariffs and Trade (GATT) to reform their domestic farm policies, may influence future farm legislation and future program costs. The final chapter of this report summarizes possible implications for farm program spending, and for the U.S. agricultural sector and economy in general, of liberalizing agricultural trade.

THE VOLATILITY OF FARM PROGRAM SPENDING

Farm program spending has varied widely in the past. Weather is an important cause of spending shifts. Drought, as explained below, can cause abrupt drops in spending. Domestic and international economic conditions affect outlays as well. Farm policy changes, both in the law itself and its administration, are also important since policy and program revisions can cause spending to rise or fall or cause program costs to shift from one year to the next. Moreover, the programs in force dictate how spending responds to the changing weather or economic conditions facing U.S. agriculture.

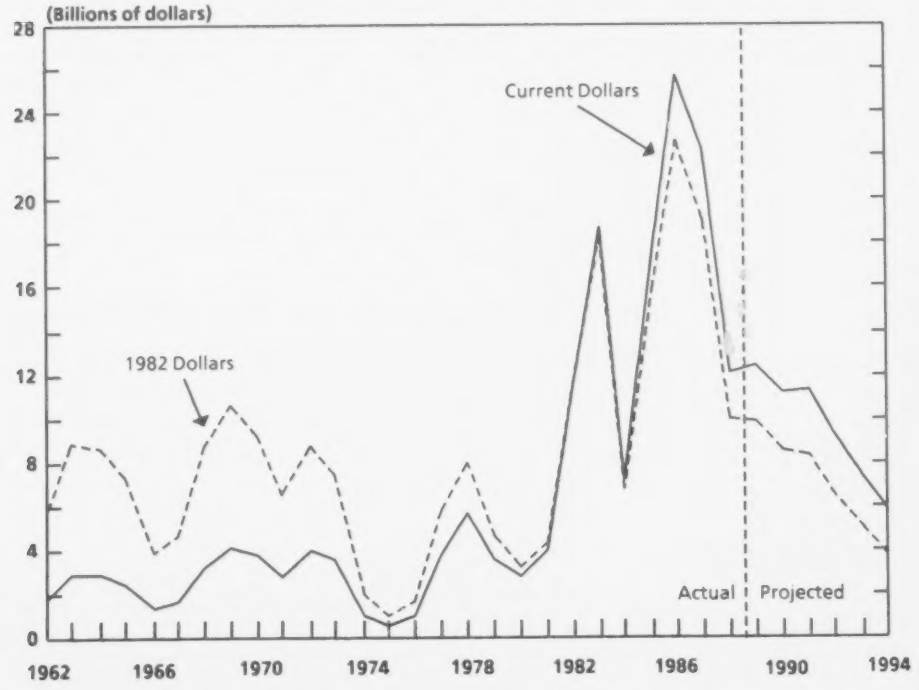
Figure 1 shows actual CCC outlays from 1962 through 1988 and the current CBO baseline projections through 1994. The most notable feature of past outlays is the very high spending levels reached during the mid-1980s. Spending in the 1960s and 1970s was small by comparison--outlays in current dollars averaged $2.4 billion annually during the 1960s and $3.0 billion during the 1970s. When expressed in 1982 dollars to adjust for inflation, however, projected outlays fall into the adjusted ranges of the 1960s and 1970s.

The high farm program costs of the mid-1980s occurred during a time of severe financial stress and adjustment in U.S. agriculture that, many have argued, justified substantial federal help. The Food Security Act of 1985 protects farmers' incomes by keeping target prices relatively high and seeks to regain the lost share of the international market by dropping price supports and subsidizing exports. This

combination of high target prices and relatively low market prices has inevitably led to high program costs.

The 1985 act, which had some influence on 1986 outlays but took full effect in 1987, is achieving several of its goals. High program payments, along with forbearance and loan write-offs by the Farmers Home Administration and other agricultural lenders, have improved the financial condition of farmers. High acreage reduction programs authorized in the law and a new method of releasing government-owned stocks, combined with the higher exports encouraged by low prices (and the falling value of the dollar), have helped reduced the

Figure 1.
Commodity Credit Corporation Outlays



SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

enormous stockpiles owned or controlled by the government. The world market share of U.S. exports has recovered and, even before the drought, the excessive commodity stocks were falling.

Another frequently stated goal of the 1985 act was to reduce program costs. It is hard to argue that this goal has been achieved--the programs have been very expensive. But costs have now fallen from the high levels of the recent past. Some of the drop in spending is directly attributable to the drought, but much of it would have occurred even without the influence of bad weather.

HOW THE DROUGHT AFFECTS CCC OUTLAYS

An event as severe and widespread as the 1988 drought can affect CCC spending for several years. The drought causes market prices to increase, alters patterns of repayments of CCC nonrecourse loans, accelerates the rate of sales of government stocks and increases their sales price, and eases future requirements for reducing acreage in the crop programs.[4] All these factors affect costs of the CCC commodity programs, but will, on net, reduce federal spending. CCC savings are partly offset because of disaster aid given to farmers, the bulk of which was authorized for the 1988 drought only, in the Disaster Assistance Act of 1988. Spending under other farm programs also increased; indemnity payments by the Federal Crop Insurance Program are about $800 million higher in fiscal year 1989 because of the drought.

Table 3 shows the estimated effects of the 1988 drought on CCC outlays over the 1988-1992 period--there is no effect beyond 1992. The drought influences outlays for such a long period of time mostly because it affects existing commodity stocks. If the drought had not occurred, it was assumed that the large government commodity stocks that were on hand entering the drought year would have been gradually released to the market over this extended period (this is especially important for corn). These stocks are now being used to mitigate the effects of the production shortfall, and will not be available to be sold

4. Most sales of CCC stocks of wheat and feed grains are actually exchanges for generic commodity certificates. These transactions have effects very similar to sales and are referred to as such in this report.

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later. This raises outlays in these later years because: 1) sales receipts in these later years will be lower than they otherwise would have been; and 2) Acreage Reduction Programs in later years will be lower (and deficiency payments consequently higher) as more current-year production would be required to meet the needs of the market.

The drought reduces outlays for regular crop programs by an estimated $6.4 billion over the 1988-1992 period, with large outlay reductions in the first years being partly offset by outlay increases in later years. The costs of disaster assistance lower the total reduction in outlays. The net effect on spending is a drop of $2.1 billion over the entire period.

The Drought's Effect on Regular Program Costs

The effects of the drought on regular CCC program costs are shown in two categories in Table 3--direct payments and nonrecourse loan

TABLE 3. ESTIMATED EFFECTS OF THE 1988 DROUGHT ON COMMODITY CREDIT CORPORATION OUTLAYS
(By fiscal year, in billions of dollars)

	1988	1989	1990	1991	1992	Cumulative Five-Year Changes
Regular Program Costs						
Direct payments	0.0	-4.1	-1.3	0.9	0.4	-4.1
Nonrecourse loan repayment, CCC stock sales, and other costs	-2.8	-2.7	0.6	1.5	1.1	-2.3
Subtotal, Regular Program Costs	-2.8	-6.8	-0.6	2.4	1.5	-6.4
Disaster Assistance Costs	a	4.2	-0.1	0.1	0.0	4.2
Total	-2.8	-2.5	-0.7	2.5	1.5	-2.1

SOURCE: Congressional Budget Office, February 1989 estimates.

a. Less than $50 million.

repayments, CCC stock sales, and other costs. Direct payments are all deficiency payments except in 1989. About $300 million of the reduction in direct payment outlays in 1989 results from not having a paid land diversion for feed grains for the 1989 crop. Without the drought, it was assumed that the Secretary of Agriculture would have offered a paid diversion program that year. All of the estimated effect of the drought on direct payments are in the feed grains (mostly corn) and wheat programs.

The drought began to affect corn prices in the early summer of 1988, during the final months of the 1987 marketing year. Because of the drought, the market prices that determine deficiency payment rates for the 1987 crop rose by an estimated 9 cents per bushel and will rise by an estimated 55 cents per bushel for the 1988 crop. The deficiency payment rate for the 1989 corn crop is assumed to be unaffected by the drought--the lower requirement for reducing acreage in the corn program will increase production and cause prices for the 1989 crop to be about where they would have been without the drought.

Even though the deficiency payment rate for the 1989 corn crop is assumed to be unaffected by the drought, the total deficiency payments on that crop will rise because the lower requirement for reducing acreage causes more production to be eligible for deficiency payments (See Box 2). Acreage reduction requirements for corn in later years are also assumed to be less restrictive (and deficiency payments higher) than they would have been without the drought. Over the 1988-1992 period, direct payments in the corn and other feed grains programs are estimated to be $2.3 billion less than they would have been without the drought.

The drought began too late to affect the wheat price that is used to calculate the deficiency payment rate for the 1987 crop. The 1988 crop price will be an estimated 74 cents per bushel higher than it would have been without the drought, and the 1989 crop price, an estimated 30 cents per bushel higher. Higher wheat prices are expected to persist through the 1989 crop year despite higher production. Prices will be supported because stocks at the end of the 1988 crop year are expected to be at extremely low levels. Estimated wheat program deficiency payments fall by nearly $1.8 billion over the 1988-1992 period.

BOX 2
CALCULATING DEFICIENCY PAYMENTS

Deficiency payments are direct federal payments that generally make up the difference between target prices, which are specified in the law, and market prices. The market prices used are *national average market prices*, so that a producer's local market price plus the deficiency payment rate could be more or less than the target price. Using average prices rather than those received by the individual farmer preserves individual incentives to market the crop for the highest possible price.

Also, *program production*--the product of program yield, which is based on historical yields, and acres planted within the restrictions of the Acreage Reduction Program--is used rather than actual production to calculate deficiency payments. Program yield does not change with current production, so deficiency payments to an individual are unaffected by variations in production owing to poor weather, for example, or if the farmer chooses more or less use of fertilizer or other inputs that enhance crop yields, or similar factors.

Deficiency payments for feed grains and wheat are of two types. The *regular* deficiency payment is calculated as the product of program production and the difference between the target price and the higher of the average price received during the *first five months of the crop year* and the *basic* (unadjusted) nonrecourse loan rate. In corn, for example, the 1988 crop target price is $2.93 per bushel and the basic loan rate (before the downward adjustment made at the discretion of the Secretary of Agriculture) is $2.21 per bushel. The regular deficiency payment rate would be $0.72 per bushel--the difference between the target price and the basic loan rate--if, as is projected, the five-month average market price is below the basic loan rate. The regular deficiency payment is subject to the payments limitation of $50,000 per person.

A second type of deficiency payment, the so-called *Findley payment*, is made if the *season average market price* is less than the basic (unadjusted) loan rate. The Findley deficiency payment rate is the difference between the basic loan rate and the higher of the season average price and the adjusted loan rate. In the corn example, the Findley deficiency payment rate would be $0.43 per bushel if the season average market price were $1.78 per bushel, as projected in the CBO baseline. These payments are not subject to the payments limitation.

Only the first type of deficiency payment is made in the cotton and rice programs. The five-month price is used to calculate the rice payment; the average price received during the preceding calendar year is used in cotton. These payments, but not the benefits of the cotton and rice marketing loan programs, are subject to the $50,000 payments limitation.

The second category of regular program costs--nonrecourse loan repayments, CCC stock sales, and other costs--is dominated by lending and inventory transactions in the corn program. In fiscal years 1988 and 1989, loan repayments and stock sales occur at a much faster rate than they would have had the 1988 crop been normal. Stocks are used to make up almost for the production shortfall--corn production in 1988 was about 30 percent below what it would have been with normal weather, but domestic use and exports in the 1988 crop year will only be about 4 percent lower.

Receipts from loan repayments and stock sales cause outlays to fall during 1988 and 1989. Some of these apparent savings are only a shift of receipts into 1988 and 1989 from later years. But the reductions in total outlays in this category are still quite large--$2.3 billion over the 1988-1992 period--because government stocks are sold at higher prices than they otherwise would have been and CCC storage costs and grain storage payments under the Farmer-Owned Reserve Program are reduced because of lower stocks. Additional outlay reductions, $150 million over the entire period, stem from the assumption that subsidy payments under the Export Enhancement Program would have been larger if the drought had not occurred.

The Costs of Drought Assistance

The Disaster Assistance Act of 1988 authorized most of the drought aid that was financed through the CCC. Most of these costs occur in 1989 and are cash payments to crop farmers with drought-related production losses. The payments are made to crop producers who experienced production losses of greater than 35 percent of their normal yields. For crops with target prices--wheat, feed grains, cotton, and rice--cash payments to CCC program participants are 65 percent of the target price for production losses of more than 35 percent. Producers of these crops who did not participate in the regular CCC program can receive payments equaling 65 percent of the nonrecourse loan rate. For soybeans and other crops, the payment rate is 65 percent of the average market price during the past five years. For severe production losses, those greater than 75 percent of normal yield, the payment rate becomes 90 percent of the applicable target price, loan rate, or market price.

The estimated cash disaster payments to crop farmers total $3.7 billion of the 1989 disaster assistance costs shown in Table 3. Other costs include assistance to livestock producers who grow their own feed--totaling $31 million in 1988 and an estimated $400 million in 1989. The bill also includes a provision aiding dairy farmers by prohibiting an expected reduction of $0.50 per hundredweight in January 1989 in the milk price support and increasing the level of support for the three months beginning in April. This change costs an estimated $200 million in 1989 and in 1990, and $100 million in 1991.

Finally, the act causes a receipt to occur in 1990 that totals nearly $300 million. Producers receiving disaster assistance will have to repay advance deficiency payments for that portion of their production getting disaster payments.

The 1988 drought helped reduce excessive commodity stocks and bring outlays down, at least in the near term. Nonetheless, the low spending levels of the CBO baseline (and of the alternative projections after 1990) relative to those of the mid-1980s, and the decline from current levels, does not primarily reflect the continuing effect of the drought. Projected outlays are below the levels of the recent past mostly because federal support levels are lower, projected export demand for supported crops is stronger, and market prices are higher.

UNCERTAINTIES IN THE OUTLAY PROJECTIONS

A deterioration of market conditions compared with those CBO assumes could cause CCC outlays to rise substantially above projected levels. However, some fundamental program changes have occurred that reduce potential outlays below levels of the mid-1980s. So, even if market conditions were as bad as those that contributed to the high spending of 1986 and 1987, CCC outlays would be lower. The factors reducing potential CCC outlays in future years include lower target prices, less use of generic commodity certificates, and the existence (and separate funding) of the Conservation Reserve Program (CRP).

Lower Target Prices

Target prices decline by about 10 percent during the life of the Food Security Act of 1985. The corn target price was $3.03 per bushel for the 1986 crop and will fall to $2.75 for the 1990 crop under current law. The wheat target price was $4.38 per bushel for the 1986 crop and falls to $4.00 for the 1990 crop. Over the same period, the rice target price falls from $11.90 per hundredweight to $10.71 and the cotton target price from $0.81 per pound to $0.729. These target price declines lead directly to lower outlays. In corn, for example, 1990 crop deficiency payments will be made on an estimated 6.1 billion bushels of production. The $0.28 difference in target prices applied to these 6.1 billion bushels amounts to a difference in deficiency payments of about $1.7 billion. Moreover, lower target prices tend to reduce program participation, further reducing outlays.

Making the same calculation for wheat, rice, and cotton, and adding the costs of feed grains other than corn, results in an estimated outlay difference of over $3.0 billion. This figure is a rough estimate of the amount by which the target price reductions in the 1985 act lower potential outlays.

Less Use of Generic Commodity Certificates

In 1986 and 1987, farmers not only received higher deficiency payments because of higher target prices, but a large proportion of the payments were made in generic commodity certificates. Generic commodity certificates were worth more than cash to farmers because opportunities existed to profit by exchanging them for grain that farmers had used as collateral in the CCC's nonrecourse loan program. Farmers could place the crop under loan at a fixed per-bushel loan rate and repay the loan using a market-determined price that, at that time, was below the nonrecourse loan rate. These transactions were advantageous to farmers, and costly for the government. These transactions are, however, no longer profitable since prices have risen well above nonrecourse loan rates. Moreover, future issuances of certificates will be much smaller than in the past because they are limited by the decline in the value of government-owned stocks.

The projected value of issued and redeemed generic commodity certificates in 1990 is about $6 billion less than 1987 issuances. A rough estimate of the difference in government costs associated with the change in both the amount redeemed and the profitability (and government cost) of the transactions is $0.5 billion.

The Existence of the Conservation Reserve Program

Having a large amount of land in the CRP reduces potential budget outlays that might be caused by worse-than-expected market conditions. This is because the CRP increases the total amount of land the Secretary of Agriculture can remove from production. Land is withdrawn from production in both the CRP and the annual acreage reduction requirements of the crop programs. Reducing plantings, and thus production, might be desirable (at least from a budgetary perspective) if market conditions worsened. Lower production would support prices and avoid government acquisitions of commodities if prices fell to the nonrecourse loan rates. Government program costs would be lower than if production could not be limited.

The current farm law limits the amount of land the Secretary can remove from production in the annual (unpaid) acreage reduction programs. The existence of the CRP, if effect, expands these limits. Acreage reduction requirements in the CBO baseline for feed grains and wheat (crops affected most by the CRP) are near the lower end of allowable ranges. If market conditions were to deteriorate, the reduction requirements could still be expanded significantly, avoiding the accumulation of surpluses and large CCC outlays. Without the CRP, projected acreage reduction requirements for these crops would be closer to their maximums, limiting the Secretary's ability to respond to worsening conditions.

Thus, the existence of the CRP enhances the Secretary of Agriculture's ability to respond to deteriorating market conditions and consequently reduces the potential increases in CCC outlays from market conditions worse than those assumed in the CBO baseline. This reduces the likelihood that CCC outlays could reach the peaks of 1986 and 1987 even if similar market conditions existed.

In addition to affecting the potential increases in CCC outlays, the current funding procedures for the CRP--it is paid for in a separate budget account--may reduce the level of outlays in the CCC account. This conservation program, however, increases federal outlays in the aggregate.

If the CRP existed in its current form and was funded through the CCC budget account, CCC outlays would be higher by the full cost of the CRP. However, if there were no conservation reserve at all, CCC outlays would probably be somewhat, but not substantially, higher than now projected. This is because most, or maybe even all, of the CRP's effect on production, prices, and CCC price support outlays could be accomplished through higher unpaid acreage reduction requirements in the annual CCC crop programs. The soil conservation goals of the reserve would suffer, as would farm income, but the supply control benefits of the program could be met more cheaply.

CHANGES IN THE BASELINE PROJECTIONS SINCE AUGUST 1988

CBO's projections for CCC outlays have declined markedly since August 1988.[5] Projected outlays in 1990 and 1991 have been brought down by about $1 billion. By 1994, the current baseline projection for outlays is $3.8 billion less than the comparable figure projected in August 1988 (see Table 4).

One important change since the August baseline is that the Agricultural Appropriations Act of 1989 (P.L. 100-460) provides sufficient funds for the CRP. Before these funds were made available in a separate account in the budget, it was assumed that generic commodity certificates would be used to make annual rental payments to landowners enrolled in the program. Costs of commodity certificates appear in the CCC account. This reduction in CCC outlays, totaling $4.5 billion over the entire period, is offset by increased outlays in the CRP budget account and has no net effect on the federal budget deficit.

5. See Congressional Budget Office, *The Economic and Budget Outlook: An Update* (August 1988), Appendix B.

The net effect of other changes in the first several years of the projections period is relatively small. Projected outlays in 1989 have dropped in large part because estimated costs of drought assistance have fallen. Outlay projections fall in later years as a result of greater price strength assumed in the current baseline. CBO has reassessed, and reduced, its estimate of total land available for program crops in later years, in light of declining target prices, and has slightly reduced assumed increases in crop yields, particularly for corn, in later years. In spite of these factors that tend to curtail production, export demand is assumed to remain strong and prices are assumed to reach levels higher than those in the August baseline.

TABLE 4. CHANGES IN CBO COMMODITY CREDIT CORPORATION PROJECTIONS SINCE AUGUST 1988
(By fiscal year, in millions of dollars)

	1989	1990	1991	1992	1993	1994
August 1988 Baseline	13.4	12.2	12.4	11.0	10.1	9.6
Changes						
1989 Appropriation Act Funding Change[a]	-0.6	-0.9	-0.7	-0.8	-0.8	-0.7
Other	-0.4	-0.1	-0.4	-0.9	-2.0	-3.1
Total Changes	-1.0	-1.0	-1.1	-1.7	-2.8	-3.8
February 1989 Baseline	12.4	11.2	11.3	9.3	7.3	5.8

SOURCE: Congressional Budget Office, February 1989 projections.

a. The 1989 Appropriation Act created a Conservation Reserve Program account that is separate from the CCC account. These figures reflect the expenditures shifted to this new account, not a reduction in federal expenditures for agriculture.

THE ADMINISTRATION'S CURRENT SERVICES ESTIMATES

The USDA's current services estimates are similar in concept to the CBO baseline in that both assume a continuation of current policy. The Administration's estimates for CCC outlays are shown in Table 5, along with the CBO baseline and the major differences between the two. The CBO baseline is lower than the USDA current services estimates in every year; the differences range from $550 million in 1989 to $2.7 billion in 1993.

TABLE 5. COMPARISON OF USDA CURRENT SERVICES AND CBO BASELINE PROJECTIONS FOR THE COMMODITY CREDIT CORPORATION (By fiscal year, in billions of dollars)

	1989	1990	1991	1992	1993	1994
USDA Current Services[a]	12.9	12.5	12.7	11.8	10.0	7.7
CBO Baseline	12.4	11.2	11.3	9.3	7.3	5.8
Target Price Assumption Differences	n.a.	n.a.	0.139	0.525	0.816	0.969
Market Price Differences	0.000	0.452	0.100	0.496	0.752	0.220
Working Capital Change Differences	1.000	1.000	1.000	1.000	1.000	1.000
P.L. 480 Adjustment	0.052	0.207	-0.041	-0.039	-0.037	-0.036
Later Crop Report	-0.495	0.0	0.0	0.0	0.0	0.0
Disaster Assistance Spending	0.415	0.0	0.0	0.0	0.0	0.0
Subtotal	0.972	1.659	1.198	1.982	2.531	2.153
Other Differences	-0.422	-0.297	0.207	0.478	0.162	-0.264
Total Difference[b]	0.550	1.362	1.405	2.460	2.693	1.889

SOURCE: Congressional Budget Office estimates, and USDA current services estimates from Office of Management and Budget, *The Budget of the United States Government, Fiscal Year 1990.*

NOTE: n.a. = not applicable.

a. Excludes wool program outlays.

b. USDA current services less CBO baseline.

A major source of difference between the projections is the treatment of "changes in working capital." The Administration includes $1 billion annually in its estimates for this residual category of spending that, in historical spending data, represents those outlays reported by the Treasury that the CCC could not accurately ascribe to other specific program activities. The amount of the change has been sometimes positive and sometimes negative, but has historically averaged close to zero; CBO therefore does not include it in the projections.

The different assumptions about the path of target prices in the years following the expiration of the Food Security Act in 1990 also contribute to the differences between CBO and Administration estimates. Assumed target prices used by the USDA in its estimates continue to decline through 1994, but not as quickly as assumed by CBO. CBO bases the rate of decline on the drop in target prices between 1989 and 1990 that was specified in the Food Security Act, as enacted. The USDA uses the actual rate of decline between 1989 and 1990 crops, which was affected by amendments to the farm law enacted in the 1987 Omnibus Budget Reconciliation Act. The 1987 reconciliation act reduced 1989 target prices but left 1990 target prices unchanged. As a result, the actual decline between the two years is less than the decline specified in the original bill. Using this actual rate of decline to extend target prices, as the USDA does, means that target price adjustments under the reconciliation act, which were intended to save money, cause projected outlays to rise in later years. By 1994, CBO's assumption of a steeper decline in target prices accounts for an outlay estimate that is nearly $1 billion lower than the Administration's.

An additional technical difference between the projections is that the Administration has included some adjustments for Public Law 480 food aid program spending in the CCC current services estimates--a net addition in 1989 and 1990 and a net subtraction in later years. CBO includes these figures in the P.L. 480 accounts in the international affairs category of the budget. The net effect of this different accounting treatment, however, is relatively small over the 1990-1994 period ($54 million).

Remaining differences in the estimates result from different assumed market conditions and technical estimating differences. One source of the difference in 1989 is that the Administration completed its current services estimates before the USDA issued its January

report on commodity stocks, while the CBO projections include this information. In the January report, the USDA boosted its estimate of the corn inventory left after last year's drought. Because more corn was available than previously believed, CBO dropped its price projection from preliminary levels. As a result, the gap between the target price and the market price widens and leads to higher CCC price support payments.

CHAPTER II

ASSUMPTIONS UNDERLYING THE CBO AGRICULTURE BASELINE

Assumptions about the economy, the weather, and demographic changes are especially important in the baseline projections for spending by the Commodity Credit Corporation (CCC). Spending for entitlement programs, such as farm price and income support programs, is strongly affected by economic and demographic circumstances. The Congress has less direct control over such spending than it has over direct appropriations; although entitlement spending is governed by laws and regulations, actual spending is finally determined by conditions at the time the payments are made. These conditions affect the size of the eligible pool of beneficiaries and the magnitude of benefit payments.

Past movements in farm program costs can be linked to changes in domestic and foreign economic conditions, and to changes in the U.S. farm law and the administration of farm programs. They can also be explained by more specific factors affecting the commodity markets, including the weather in the United States and abroad. Projections of future CCC program costs must make assumptions about all of these factors.

THE ECONOMIC ENVIRONMENT

In addition to affecting the cost of federal price and income support programs, U.S. general economic conditions affect the financial well-being of U.S. agriculture by influencing prices received for farm products, prices paid for inputs used on the farm (including interest costs), and the value of farm real estate. The increasing strength of the ties between international markets and U.S. agriculture and the U.S. economy has also made world economic conditions more important. Specifically, exchange rate movements and economic growth among nations that buy U.S. farm products are important, as are agricultural and trade policies of both competitors and customers in the world

marketplace. Assumptions about future directions of all these factors--some general, some specific, and some highly uncertain--underlie the Congressional Budget Office (CBO) baseline.

The general economic conditions assumed in the baseline for CCC outlays are discussed in detail in CBO's Annual Report.[1] Certain components of the CBO macroeconomic outlook are important to farm program spending projections:

- The real gross national product (GNP) is expected to grow 2.9 percent in 1989 and 2.1 percent in 1990. For 1991 through 1994, CBO projects annual real growth at 2.2 percent, a rate based on long-run historical trends, with no recession.

- Growth is expected to be slower than in the past several years, because the economy is now operating at close to its potential and because monetary policy is aimed at slowing growth to a sustainable rate.

- Last summer's drought reduced real GNP for 1988 by about 0.3 percentage points. The 2.9 percent real GNP growth forecast for 1989 incorporates a sharp recovery in farm production with an assumed return to normal weather. Nonfarm GNP is expected to grow at about 2.6 percent.

- Real income growth among the industrialized trading partners of the United States is projected to be 2.7 percent in 1989, marginally below the U.S. growth rate. Annual income growth in these countries in later years is projected to be about 0.5 percentage points greater than that projected for the United States.

- Real income growth in newly industrializing economies and developing countries (both groups are important customers for U.S. agricultural products) is projected to be somewhat greater than in the developed countries. The economies of these countries grew by an average of about 3.4 percent in 1988, and are projected to grow by about 3.8 percent in 1989 and at slightly higher rates in later years.

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1. Congressional Budget Office, *The Economic and Budget Outlook: Fiscal Years 1990-1994* (January 1989).

- The baseline assumes no important changes in other nations' agricultural or trade policies that would cause significant changes in world prices or shifts in foreign demand for U.S. commodities. Such changes, however, could result from the current round of the General Agreement on Tariffs and Trade (GATT) (see Chapter 4).

- CBO expects the value of the dollar to decline during the 1989 to 1994 period. The projected annual rate of decline is 4.0 percent in 1989, falling to 3.0 percent in 1990, and 2.5 percent by 1994.[2]

These key macroeconomic factors affect the CCC projections in several ways. Domestic economic growth influences consumer demand for food, especially for meat products. Higher demand for meat increases both the number of animals placed on feed and the feeding rates per animal, which in turn raises demand for animal feeds--corn, other feed grains, and soybean meal. Demand for apparel, and thus the use of cotton by domestic mills, also responds to changes in consumer incomes. Domestic demand for food grains such as wheat, however, respond little to changes in income in the United States.

Conditions in world markets also affect demand for many U.S. agricultural products. With respect to demand for U.S. exports, the expected growth in foreign incomes--especially in developing countries where demand for food is most constrained by low incomes--should raise world demand for food over the next several years. The very slow income growth in these countries during the early 1980s hurt U.S. exports.

The declining value of the U.S. dollar also should contribute to greater world demand for U.S. agricultural products.[3] A depreciating dollar tends to lower the foreign currency prices of U.S. agricultural commodities, which encourages foreign demand and discourages com-

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2. This exchange rate is measured in nominal terms relative to 10 major industrialized countries (the FRB-10 rate). A more complete exchange rate, which includes both developed and developing countries (the FRB-18), was also used in the forecast.

3. The dollar has not declined in value relative to every currency. For example, the value of the dollar has not changed much relative to the currencies of two key agricultural export competitors--Canada and Australia--and it has appreciated in real terms compared with a number of Latin American currencies. It has fallen significantly, however, relative to the currencies of Japan, the countries of Western Europe, and the rapidly developing economies in Asia, which are important markets for U.S. agricultural exports.

petitors' supplies. Further, the lower U.S. nonrecourse loan rates mean that U.S. commodity programs are less likely to support world prices, as they did in the early 1980s.

How much U.S. agricultural exports increase over this period also depends on foreign nations' agricultural and trade policies, since government policies in most countries control imports of agricultural products to some degree. For example, the Japanese government controls most of Japan's food imports, either through quotas or through state trading organizations that buy wheat and rice at world prices and sell to consumers at higher domestic prices. The European Community places variable levies on imports, insulating the prices paid by European consumers from changes in the prices of many U.S. commodities. Both the Japanese and European policies hamper economic adjustments to changing supply and demand conditions.

PRICE AND INCOME SUPPORT POLICIES AND PROGRAMS

The CBO baseline assumes that the price and income support programs of the Food Security Act of 1985, as amended, continue beyond its expiration in 1990 through the end of fiscal year 1994 and the 1994 crop years. Authority for CCC activities does not end when the 1985 act expires. Most CCC programs and activities are permanently authorized in the Agricultural Adjustment Act of 1938, the Commodity Credit Corporation Charter Act of 1948, and the Agricultural Act of 1949. If a new farm bill were not enacted for the 1991 crops, the programs and policies of this underlying permanent legislation would be in effect. The CBO baseline assumes extension of the current farm law beyond its expiration because the Congress has, for many years, modified the permanent legislation by enacting multiyear amendments.

How the programs are operated within the broad discretion provided by the law governing farm programs is nearly as important as the law itself. The flexibility in the current law allows the Secretary of Agriculture to adjust programs as market conditions change. Restricting Secretarial discretion in a multiyear farm bill could lead to farm programs that run counter to the intent of the legislation because of changing commodity supply and demand conditions.

The Secretary's choices about the operation of programs--through setting loan rates and acreage reduction requirements, for example--can lead to very different outcomes for production, prices, farm income, and government outlays. The CBO baseline assumes that the programs will be operated with the primary objective of keeping market prices of commodities at competitive levels to maintain or increase the U.S. share of world markets. This assumed objective is not pursued at any cost, however, and the consequences for the budget, farm income, and stocks would also be considered.

The general objectives of the farm programs lead to low nonrecourse loan rates and to acreage reduction requirements in wheat and corn that do not constrain production enough to cause prices to rise above reasonable levels, given projected world market conditions. Such policies allow government stocks to build slowly. Acreage reduction requirements assumed for rice and cotton--crops not significantly affected by the 1988 drought--are kept at higher levels.

CBO's baseline assumptions about land enrolled in the Conservation Reserve Program (CRP) and generic certificates are also discussed. Assumptions about levels of annual acreage reduction programs are affected by land taken out of production in the long-term programs. Generic certificates have been important over the past several years by allowing the release CCC-owned stocks to the market. The dramatic reductions of government stocks now occurring restrict the ability of the USDA to issue certificates and limit their usefulness.

This report does not try to examine the full range of Secretarial discretion in operating farm programs. Broad authority exists, even to create new programs. The Administration started the Export Enhancement Program (EEP), for example, under existing authority in 1985 before it was specifically authorized in the Food Security Act.

Nonrecourse Loan Rates

The Secretary of Agriculture sets nonrecourse loan rates, within limits, for feed grains, wheat, and soybeans, but not for rice and cotton. Loan rates for rice and cotton, which have marketing loan programs, are set by specific formulas and rules in the law. Nonrecourse loan

rates in marketing loan programs have little effect on market prices, farmer returns, or total government costs. They mainly determine the distribution of program benefits between deficiency payments and marketing loan benefits for producers participating in these programs.

For wheat, feed grains, and soybeans, the law contains an initial, or "basic," loan rate that can be subject to discretionary reductions. The law limits the size of these reductions. For wheat, for example, the formula loan rate is 75 percent to 85 percent (the Secretary's choice) of a five-year moving average of market prices, with the high year and low year removed. The basic loan rate was set in the law for the 1986 crops at $3.00, and the decline from one year to the next that might result from the moving average formula was limited to 5 percent for the 1987 crop, 3 percent for the 1988 crop, 7 percent for the 1989 crop, and 5 percent for the 1990 crop. The maximum year-to-year reductions have determined the basic loan rate for several years. Assumed rising market prices eventually cause the moving average rather than the maximum reductions to determine the basic loan level (see Table 6).

The Secretary can set the actual loan rate for wheat by reducing the basic loan level by up to 20 percent. The basic loan for the 1989 crop is $2.59 per bushel and has been reduced by the Secretary to $2.06 per bushel, the maximum allowable drop of 20 percent. Loan rates for corn and other feed grains are determined in ways similar to those for wheat. The 1986 crop base for corn was $2.40 per bushel.

The basic loan rate for soybeans is 75 percent of a five-year moving average of past prices (with the high and low years removed). The loan cannot fall by more than 5 percent per year and begins with a base level of $5.02 for the 1987 crop. The basic loan cannot fall below $4.50 per bushel. The Secretary has the discretion to drop the loan by up to 5 percent below the formula low. The final loan rate, however, also cannot fall below $4.50 per bushel. This minimum is reached with the 1990 crop.

The CBO baseline assumes that the Secretary would set loan rates at levels well below the expected market price, to prevent the non-recourse loan programs from acting as floors for market prices. Rates set for corn in the final years of the projection period rise above statutory minimums but are low enough that they would not be expected to support prices.

Acreage Reduction Programs

Acreage reduction programs require participating producers to devote some portion of their base acreage (that recognized by the U.S. Department of Agriculture as being normally used to produce a program crop) to a conserving use. The programs therefore restrict supply to reduce stocks and support market prices. Producers must comply with these acreage reduction requirements to be eligible for deficiency payments, nonrecourse loans, and other program benefits. Increasing the acreage reduction requirement reduces government costs by reducing the land, or production base, on which program payments are made, and by reducing the level of program participation.

TABLE 6. PROGRAM ASSUMPTIONS IN THE CBO BASELINE (By crop year)

	Actual		Projected					
	1987	1988	1989	1990	1991	1992	1993	1994
Nonrecourse Loan Rates (Dollars per bushel)								
Corn	1.82	1.77	1.65	1.56	1.58	1.59	1.59	1.63
Wheat	2.28	2.21	2.06	1.97	1.99	2.14	2.16	2.13
Rice[a]	6.84	6.63	6.50	6.50	6.50	6.50	6.50	6.50
Cotton[b]	0.523	0.518	0.500	0.500	0.500	0.500	0.500	0.500
Soybeans	4.77	4.77	4.53	4.50	4.50	4.50	4.50	4.50
Unpaid Acreage Reduction Requirements (Percent of base acreage)								
Corn[c]	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Wheat	27.5	27.5	10.0	5.0	5.0	5.0	5.0	5.0
Rice	35.0	25.0	25.0	22.5	20.0	20.0	17.5	17.5
Cotton	25.0	12.5	25.0	25.0	25.0	25.0	25.0	25.0

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

a. Figures are in dollars per hundredweight.

b. Figures are in dollars per pound.

c. There was an additional voluntary Paid Land Diversion Program for corn of 15 percent of base acres in 1987 and 10 percent of base acres in 1988. No other Paid Land Diversion Programs are assumed.

The Secretary's choice of acreage reduction levels is guided or constrained by the law. Following are summaries of the range of available choices for major crops:

- Corn and other feed grains. The acreage reduction level must be between 12.5 percent and 20 percent if estimated beginning stocks are greater than 2 billion bushels and cannot be greater than 12.5 percent if stocks fall below that level. Acreage reduction programs for sorghum and barley are the same as for corn. The 1987 Omnibus Budget Reconciliation Act limited the acreage reduction for oats for the 1988-1990 crops to no greater than 5 percent of base acreage. The Secretary can waive this limitation for the 1990 crops if oat supplies are judged to be excessive.

- Wheat. The acreage reduction level must be between 20 percent and 30 percent of base acreage if estimated total stocks carried over into the crop year exceed 1 billion bushels. The reduction level must be 20 percent or less if total stocks at the beginning of the crop year are estimated to be 1 billion bushels or less.

- Rice. The acreage reduction in the rice program cannot exceed 35 percent. The farm law instructs the Secretary to set the reduction level based on a goal of having 30 million hundredweight in stocks at the end of each year.

- Cotton. The acreage reduction in the cotton program cannot exceed 25 percent of base acreage. The Food Security Act instructs the Secretary to set the reduction level in order to achieve a stock level of 4 million bales of cotton at the end of each year.

- Soybeans. There is no acreage reduction program for soybeans.

The USDA has announced the 1989 crop programs and these announced levels are used in the baseline for the coming year. Levels assumed in later years are shown in Table 6. The corn acreage reduction requirement is kept at 10 percent; the wheat requirement falls to 5 percent of base acreage and remains there through 1994. The levels of

land set-aside are quite low compared with those of recent years, both because the drought reduced wheat and, especially, corn stocks and the CRP removed substantial amounts of land previously devoted to wheat or feed grains.

Cotton and rice remain higher, compared with the recent past, than do wheat and corn. Cotton and rice were little affected by the drought. The good 1988 cotton crop and slack demand caused an increase in stocks and, as a result, an increase in the acreage reduction requirement. Cotton ARPs are kept at maximum allowable levels through 1994 as stocks are gradually reduced toward the target level.

The Increasing Importance of the Conservation Reserve Program

The CRP began taking significant amounts of land out of production with the 1987 crops--the program had enrolled 10.2 million acres of land designated as program base of one of the program crops and 5.4 million acres of other cropland (see Table 7). The Food Security Act of 1985 requires at least 40 million acres to be in the reserve by the end of 1990. The CBO baseline assumes enrollment of only 35 million acres before the authority to add more land expires. Reaching the minimum of 40 million acres would be very difficult under current law and regulation. The President's budget makes a similar assumption about the final size of the reserve.

From the perspective of CCC programs, the CRP acts much like the annual acreage reduction and land diversion programs in terms of its effect on acres planted, production, and prices. The major difference is the duration of the contracts and the difficulty of increasing planted acreage to respond to an expected greater need. Reducing the amount of land taken out of production in the annual programs can easily be done if more production appears desirable. The Secretary does have the authority to modify or end CRP contracts in some instances, but doing so is more complicated, and less likely, than simply reducing the annual acreage reduction programs.

By the end of the projection period, the CRP is the main source of land reduction assumed to be in place. Having this land in a long-term program may well serve the conservation goals of the CRP but does

make it harder for the Secretary of Agriculture to increase production if conditions would warrant.

The Declining Power of the USDA to Affect Market Prices by Releasing Government Stocks

During the past several years, the USDA has had an unprecedented influence over commodity prices within the marketing year. This influence has resulted from large government stocks, the issuance of generic certificates, and the flexibility that the Secretary of Agriculture has had in affecting the use of these certificates--what government-owned stocks could be redeemed and at what rate. Upward

TABLE 7. LAND ENROLLED IN THE CONSERVATION RESERVE PROGRAM AND IDLED IN ANNUAL PROGRAMS
(By crop year, in millions of acres)

	Actual			Projected					
	1986	1987	1988	1989	1990	1991	1992	1993	1994
Conservation Reserve Program									
Land Designated as Program Base									
Corn	0.20	2.29	2.80	3.51	4.09	4.09	4.09	4.09	4.09
Other Feed Grains	0.40	2.80	4.70	6.50	7.80	7.80	7.80	7.80	7.80
Wheat	0.60	4.10	7.20	8.10	9.80	9.80	9.80	9.80	9.80
Cotton	0.12	0.98	1.00	1.20	1.30	1.30	1.30	1.30	1.30
Total Program Base	1.32	10.17	15.70	19.31	22.99	22.99	22.99	22.99	22.99
Soybean Acres	0.20	1.50	2.20	2.90	3.50	3.50	3.50	3.50	3.50
Other Crops	0.48	3.93	6.60	7.79	8.51	8.51	8.51	8.51	8.51
Total Enrolled Acreage	2.00	15.60	24.50	30.00	35.00	35.00	35.00	35.00	35.00
Annual Acreage Reduction Programs[a]									
Total Acreage	43.55	56.58	50.36	22.65	18.55	17.34	15.94	14.43	12.80

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

a. Category includes unpaid Acreage Reduction Programs, Paid Land Diversion Programs, and land left idle in the 50/92 and 0/92 programs.

price movements could be dampened by encouraging additional redemptions of CCC stocks; downward pressure on prices could be reduced by making less grain available. The Secretary can still affect expected prices by changing acreage reduction requirements or adjusting nonrecourse loan rates, but the ability to react to changing market conditions within the marketing year depends on having large government stocks, which will soon no longer be the case.

Through these stock releases, generic commodity certificates have played--and continue to play during 1989--an important role by giving the market access to Farmer-Owned Reserve (FOR) and CCC-owned grain stocks without commodity prices having to rise to the FOR release levels or the slightly higher CCC sales prices. However, as government-owned stocks fall, both the usefulness of certificates and the discretion to issue them also fall. The usefulness of certificates declines simply because the need to have a way to release government stocks declines. The authority to issue certificates is reduced because the USDA is constrained to issue certificates with a face value not to exceed the value of government-owned stocks.

The CBO baseline assumes that certificates are issued during the 1990-1994 period only as subsidy payments in the Export Enhancement Program and to participants in the Targeted Export Assistance program. The vast majority of certificates issued in the past several years have been to producers as part of their deficiency payments. The baseline assumes that all future deficiency payments are made in cash.

PRODUCTION AND MARKET FACTORS

Other important factors affecting baseline outlay projections are the weather; growing agricultural productivity; producer participation in the commodity programs; and, most directly, specific levels of production, use, prices, and stocks of commodities supported by CCC programs.

The Weather and Growth in Crop Yields

Variation in the weather is the primary cause of year-to-year variation in yields and, as is clear from recent experience, is a major cause of variation in CCC outlays. CBO assumes that normal weather prevails and that no other unusual environmental factors, such as pests or disease, affect national average yields. Even though CBO assumes normal weather conditions to hold, projected yields for the 1989 crops of corn and wheat are slightly below their long-term trends because of deficient subsoil moisture and the stress on the 1989 crop of winter wheat.

Assuming that the weather does not affect the national average yield is not the same as assuming that each region of the country or every farmer experiences average weather. During any year, regional variation in weather patterns is to be expected, so a regional or localized drought or other natural disaster is not necessarily inconsistent with the assumptions underlying the baseline.

The assumption of average weather for the five-year projections period almost certainly will not hold; unusually high or unusually low yields for some crops will probably occur. CBO assumes average weather conditions not because it is the most likely scenario for the projection period, but because there is no acceptable way to forecast the type of weather variation that is likely to occur.

Assumed crop yields grow throughout the projection period as a result of farmers adopting technological improvements that enhance output. Yield increases are based primarily on growth observed in the past. The assumed average annual rate of yield growth over the 1990-1994 crop years is 1.3 percent for wheat, 1.7 percent for corn, 0.8 percent for cotton and rice, and 1.0 percent for soybeans.

Milk output per cow is also expected to increase over the projection period. The average annual rate of increase assumed in the baseline is 2.0 percent. There is much uncertainty about future productivity in the dairy industry; greater gains in output per cow could result if certain technologies that may become available during the next several years are adopted.

Projecting Participation Rates in Crop Programs

The rate of participation in the feed grains, wheat, rice, and cotton programs--measured as a percentage of the crop's total base acreage--is a key part of the projections of program costs; participation is voluntary. Program outlays are directly affected because participants receive deficiency payments and are eligible for nonrecourse loans. Outlays are also affected because participants must idle some portion of their base acreage. This reduces total production and tends to support prices (affecting deficiency payment rates) or reduces surplus output (affecting nonrecourse loan program costs). Participants could also enter a paid diversion program, though the CBO baseline assumes none to be offered. Producers choosing not to participate receive no direct government payments but, of course, can make planting decisions without restriction. Nonparticipants could indirectly benefit if the nonrecourse loan program supports market prices.

The estimated net benefits of participation determine the projections of participation rates in the CBO baseline. This involves weighing the benefits (deficiency payments and marketing loan benefits, if any) against the costs (forgone income from idled acreage plus the costs of planting the idled acreage in a conserving crop). Generally the higher the acreage reduction requirement and the higher the expected market price (and thus, the lower the expected deficiency payment), the lower the expected participation rate.

Individual producers make similar calculations when making their participation decisions. Other benefits they consider include the reduction of risk and access to credit at below-market rates through the nonrecourse loan program. Risk is reduced because deficiency payment rates change with average levels of market prices and because historical rather than actual levels of production determine payments. The $50,000 payments limitation affects the decision for some producers with large farms.

Participation rates in recent years have been very high as direct payments have far outweighed the costs of meeting the acreage reduction requirements. The rates of participation in the 1988 programs, for example, were 87 percent in corn, 86 percent in wheat, 92 percent in rice, and 88 percent in cotton (expressed as a percentage of base acres). Generally, participation tends to fall throughout the projection period

as the assumed declining target prices and the projected rising market prices reduce net returns from participating.

Supply and Use Assumptions for Major Crops and Dairy Products

CBO models for the major field crops and dairy products incorporate technical, economic, and accounting relationships to project total supply, use, stocks, and government outlays. These models ensure that technical and accounting relationships are properly reflected and that the effects of some commodities on the production and use of other commodities are correctly included. However, to determine actual values for important variables, such as levels of exports, CBO considers the underlying economic and program assumptions, conducts analyses of trends and other factors affecting the variable being projected, and, lastly, takes into account the judgments of commodity experts before constructing the projection. A panel of experts from government and business then reviews a preliminary version of the CBO baseline, and their comments and the results of further discussions with other commodity experts are reflected in the final baseline assumptions.

MINOR CROP PROGRAMS AND OTHER EXPENSE CATEGORIES

The bulk of total outlays for the CCC shown in Table 1 (page 3) appear in the programs for feed grains, wheat, rice, cotton, soybeans, and dairy products--those programs that are explicitly modeled by CBO. For the other supported commodities--peanuts, tobacco, honey, and sugar--CBO reviews current policy projections provided by the USDA and, in most cases, accepts these figures.

The major components of CCC spending not directly attributed to crop programs or the 1988 Disaster Assistance Act account for about 12 percent of the total. These are briefly described below.

Export Credit Programs. The CCC guarantees loans that finance export sales of U.S. commodities. These programs provide protection to U.S. exporters or their assignees--typically U.S. banks--against non-

payment by foreign banks when exports are sold on a deferred-payment basis. CCC charges fees for these guarantees. When importers or their banks default on these loans, CCC honors the guarantee by paying to the exporter or the exporter's bank the amount of principal and interest loss covered by the guarantee. The CCC may then attempt to recover its loss from the importer.

Outlays shown on the "Export Guarantee Claims" line of Table 1 (Page 3) are projections of the net costs of this program, including loss payments to banks, receipts from fees, and any recovery of loss from defaulted loans taken over by the CCC.

Receipts shown in the "Direct Export Loans" line of Table 1 are projections of repayments of direct loans made in past years by the CCC to finance export sales of U.S. commodities. No new loans have been made under this program since 1985.

Storage Facility Loans. These loans were made to farmers to build or remodel grain storage facilities on their farms. No new loans are being made under this program. The receipts shown in Table 1 are payments by farmers on past loans.

Operating Expenses. USDA's Agricultural Stabilization and Conservation Service (ASCS) runs most of the CCC programs; most of the projected outlays in this category are salaries and other expenses incurred by the ASCS in program operations.

Changes in Working Capital. This account category balances outlays reported by the Treasury with apparent outlays stemming from individual program activities. In years for which outlays are known, working capital changes represent difficulties in completely allocating expenditures among spending categories. CBO does not include an entry in this spending category in its projections.

Interest Payments and Receipts. The interest payments shown are made to the Treasury and result from CCC borrowings. The CCC can borrow up to $30 billion from the Treasury to finance its activities. Annual appropriations are made to reimburse the CCC for past and anticipated net losses of its activities. The appropriation is usually applied to the outstanding Treasury debt, and funding needs throughout the year are met by periodically borrowing additional funds from

the Treasury. Since the payments are made within the government--they are outlays for the CCC but receipts for the Treasury--their magnitude does not directly affect the measured deficit. The government's average cost of borrowing from the public determines the interest rate applied to CCC borrowing from the Treasury.

Interest receipts are primarily interest payments made by farmers on nonrecourse loans. The interest rates charged to borrowers on nonrecourse loans are periodically set based on the CCC's cost of borrowing money from the Treasury. The current interest rates are about 9.5 percent.

CHAPTER III

THE OUTLOOK FOR MAJOR COMMODITIES

Conditions in the wheat, soybean, and corn, markets have changed significantly from a year ago, largely because of last summer's drought. CBO estimates that 1988 marketing year prices will be sharply higher than last year, wheat by 43 percent, soybeans by 22 percent, and corn by 31 percent. Corn stocks are at a level many consider adequate but not excessive, while wheat and soybeans stocks are below what many analysts consider to be normal levels.

Given current market conditions, weather in the U.S. and abroad will have a greater-than-usual bearing on market prices during the coming year. If relatively good weather allows yields to return to normal levels, as is assumed in this baseline, crop prices are likely to fall substantially from current levels. However, without the cushion of surplus stocks and with low subsoil moisture conditions persisting in major U.S. production regions, poor weather could drive prices significantly above this year's levels. To reduce the probability of much higher prices, the Secretary of Agriculture reduced the size of wheat and feed grain Acreage Reduction Programs (ARPs). Farmers are expected to respond to lower ARPs and higher market prices by increasing planted acres in wheat, corn, and soybeans by more than 10 percent over last year's level.

Cotton and rice markets were largely unaffected by the 1988 drought. In contrast to the corn, wheat, and soybean markets, the cotton and rice markets are currently facing falling prices and rising stocks. In cotton, larger-than-expected foreign production and relatively weak domestic demand have combined to push prices well below the 1988 crop loan rate. CBO expects cotton prices to fall nearly 20 percent below last year's level. The Secretary has responded to changing market conditions by doubling the size of the 1989 cotton ARP to 25 percent. In rice, a large U.S. crop has pushed prices lower and stocks higher. However, CBO assumes that future increases in demand will allow the Secretary to gradually lower ARPs without further significant stock building.

The dairy program is very different from the crop programs; while export demand is key in determining market conditions for the field crops, the dairy market is dominated by domestic supply and use factors. The dairy program in the 1985 Food Security Act requires annual reductions in milk price supports when excess government purchases are expected. However, the Disaster Assistance Act of 1988 interrupted that process in 1989 by freezing the support price at last year's level and raising it during the April through June quarter. Large government purchases of dairy products are expected this spring, since higher price supports encourage lower consumption and increase incentives to produce milk. The baseline assumes that the Secretary of Agriculture will reduce the support price in January 1990 as provisions of the 1985 Act again take effect. Baseline projections assume that annual support price reductions will also be made in 1991 and 1992, but that in later years government purchases will be relatively low and no further support price changes will be required.

Government program assumptions both affect and are affected by the outlook for the crops. With surplus stocks largely eliminated, adjustments in acreage control levels are the major tool at the disposal of the Secretary to respond to changes in the market environment. One other tool at the Secretary's disposal is the level of subsidized exports through the Export Enhancement Program (EEP). The baseline assumes that EEP sales will decline substantially during fiscal year 1989 because of a restriction imposed by the 1989 Agriculture Appropriation Act. After recovering from this restriction in fiscal year 1990, EEP sales will gradually decline because of the lack of surplus wheat stocks.

CORN

Last summer's drought was one of the worst in history in terms of its impact on corn yields. Yields were reduced by 29 percent compared with 28 percent during the 1983 drought. Last summer's drought is generating the highest level of corn prices in four years, and yet despite its severity, corn prices have remained well below the price levels seen during the 1983 drought. The magnitude of stocks, over 4 billion bushels, carried over from the 1987 season accounts for most of

the difference; most of these stocks were under government control. USDA is taking the opportunity this season to reduce surpluses built up over several years by exchanging government stocks for generic certificates. This policy has kept 1988 marketing year corn prices much lower than they would have been otherwise. With surplus stocks largely gone, the 1989 corn market has a great deal more price uncertainty than during the past several years. Larger-than-normal 1989 production could mean prices back below $2.00 per bushel; another small corn crop or unexpected demand surge could send prices dramatically higher.

Government Programs

The 1989 target price for corn is $2.84 per bushel (as mandated by the 1987 Omnibus Budget Reconciliation Act) and $2.75 in 1990 (as specified in the 1985 Food Security Act). In later years, CBO assumes that target prices will continue to decline by 4.5 percent per year through 1994, continuing the rate of decline legislated in the final years of the Food Security Act.

Under current law, the nonrecourse loan rate is determined by taking 75 percent to 85 percent of the five-year average of past market prices (excluding the highest and lowest years). In addition, current law constrains the 1990 crop loan rate from changing by more than 5 percent from the previous year. The Secretary of Agriculture has discretionary authority, or "Findley authority," to reduce the formula-determined loan rate by up to 20 percent. The CBO baseline assumes that the Secretary will fully use this authority for the 1990 crop loan rate as he has for the past several years. This assumption results in a 1990 crop loan rate of $1.56 per bushel, five percent below the 1989 level. In later years, CBO assumes that the Secretary will gradually diminish his use of Findley authority to make reductions, causing the loan rate to stay close to the 1990 crop level.

USDA reduced the 1989 unpaid Acreage Reduction Program (ARP) to 10 percent of base acreage following the drought-reduced 1988 harvest. The baseline assumes that the USDA will continue 10 percent ARPs during the 1990-1994 period. However, the Food Security Act mandates that the percentage must rise to at least 12.5

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percent if carryover stocks are estimated to exceed 2 billion bushels. Projected 1989 carryover stocks are very close to this trigger level.

Related Government Program Parameters. Corn base acreage entered into the Conservation Reserve Program (CRP) is projected to rise from 2.8 million acres in 1988 to 4.1 million acres in 1990. The baseline also assumes the 0/92 program, which allows producers who prefer to idle all acreage to receive 92 percent of their expected deficiency payment, to be available as an option for 1989 through 1994 crop program participants. CBO expects declining interest in 0/92 on the part of corn producers as declining target prices reduce incentives to participate.

Finally, the Disaster Assistance Act of 1988 mandated an oilseeds planting program for the 1989 crops. Participants of the 1989 wheat, feed grains, cotton, and rice programs will be allowed to plant soybeans or sunflowers on 10 percent to 25 percent of their permitted acreage without losing base acreage in subsequent years. However, producers who enroll in the oilseed program must forgo deficiency payments on the acreage devoted to oilseeds. This program will affect corn acreage this spring because corn and soybeans tend to compete for the same land. The baseline assumes that the Secretary will not use the discretionary authority provided in the Disaster Assistance Act to offer this program in 1990.

Supply and Demand

Production. CBO projects that 1989 corn production will rise to 7.9 billion bushels, up 60 percent from the drought-affected 1988 crop and 11 percent above the 1987 crop. (Table 8 summarizes production and use projections for corn; Box 3 explains important concepts found in all tables in this chapter.) Higher plantings this spring combined with an assumed return of normal weather account for the increase in production. Planted corn acreage will reach nearly 76 million acres in 1989, up more than 8 million acres from last year, mainly because USDA has reduced the size of this acreage program to 10 percent of base acreage from a maximum of 30 percent last year (participating producers were required to idle 20 percent of base acreage and 10 percent more was allowed in exchange for a diversion payment). The

TABLE 8. CORN SUPPLY AND USE (By crop year)

	Actual	Projected						
	1987	1988	1989	1990	1991	1992	1993	1994
				Millions of Acres				
Base Acres (Net of CRP)	81.5	83.4	83.9	83.4	82.9	82.1	81.5	80.7
				Percent of Base Acreage				
Acreage Reduction								
ARP	20	20	10	10	10	10	10	10
PLD	15	10	0	0	0	0	0	0
Participation								
ARP	90	87	79	78	73	69	64	56
PLD	64	45	0	0	0	0	0	0
				Millions of Acres				
Total Conservation Use Acres	21.6	17.9	6.7	6.5	6.1	5.7	5.2	4.6
Acres Planted	65.7	67.6	75.9	77.5	77.0	76.9	76.9	76.9
Acres Harvested	59.2	58.2	68.3	69.7	69.3	69.2	69.3	69.2
				Bushels per Acre				
Yield Per Harvested Acre	119.4	84.6	115.0	117.1	119.2	121.3	123.4	125.5
Program Yield	104.0	104.0	104.0	104.0	104.0	104.0	104.0	104.0
				Millions of Bushels				
Supply								
Beginning Stocks	4,882	4,259	1,717	1,836	1,983	1,996	1,995	1,997
Production	7,072	4,921	7,856	8,163	8,262	8,396	8,545	8,680
Total (Including imports)	11,958	9,185	9,577	10,003	10,249	10,396	10,544	10,681
Use								
Food, Seed, and Industrial	1,229	1,218	1,276	1,330	1,378	1,424	1,469	1,491
Feed and Residual	4,738	4,317	4,573	4,733	4,842	4,875	4,906	4,952
Exports	1,732	1,933	1,892	1,957	2,033	2,102	2,172	2,256
Total	7,699	7,468	7,740	8,020	8,253	8,401	8,547	8,700
Ending Stocks	4,259	1,717	1,836	1,983	1,996	1,995	1,997	1,981
Farmer-Owned Reserve	1,127	592	500	450	450	450	450	450
CCC-Owned Stocks	835	625	367	367	317	282	272	262
Outstanding CCC Loans	929	100	340	340	320	320	300	270
Free Stocks[a]	1,368	400	629	826	909	943	975	999
				Dollars per Bushel				
Prices								
Target Price	3.03	2.93	2.84	2.75	2.63	2.51	2.40	2.29
Season Average Price	1.94	2.55	2.01	1.99	2.01	2.08	2.13	2.15
Loan Rate	1.82	1.77	1.65	1.56	1.58	1.59	1.59	1.63
Deficiency Payment Rate	1.09	0.39	0.83	0.80	0.72	0.53	0.36	0.24

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTES: See Glossary for an explanation of terms. CRP = Conservation Reserve Program; ARP = Acreage Reduction Program; PLD = Paid Land Diversion.

a. Privately held stocks not being used as collateral for government loans.

anticipated increase in corn plantings would be even greater if not for the oilseed planting program, which is expected to increase soybean plantings by 2 million acres, and larger acreage retired in the CRP.

CBO expects a 1989 corn yield of 115 bushels per harvested acre, slightly below what many consider the trend yield. While the baseline assumes normal weather during the upcoming growing season, the crop is likely to be quite vulnerable to dry conditions because of poor subsoil moisture in much of the Corn Belt. Given the expectation of

BOX 3
IMPORTANT CONCEPTS IN THE COMMODITY SUPPLY, USE, AND OUTLAY TABLES

The tables in this chapter are designed to be self-explanatory. However, sometimes additional information is needed to understand how the various table elements fit together.

For example, acres planted to program crops cannot be directly calculated from information in the tables. Planted acres of corn, for instance, equal the sum of acreage planted by program participants and nonparticipants. Participating producers may plant on their corn program base acreage, less the acreage that must be idled under the corn acreage reduction program. This amount represents a ceiling on acreage planted in corn for the participating producer. Participating producers can, and sometimes do, plant less than the maximum and still receive program benefits. Nonparticipating producers are free to plant corn on any amount of acreage regardless of the size of their base acreage. However, producers that participate in another crop program, but not in the corn program, cannot plant corn in excess of their program base acreage.

Moreover, the total deficiency payment rate in some cases cannot be derived from the price information provided in the tables. Box 2 describes the calculation.

Columns in the supply and use tables are crop, or marketing, years while those in the program outlay tables are fiscal years. The period covered by marketing years varies by crop--only the dairy marketing year coincides with the fiscal year. In the crop programs, outlays in any fiscal year can stem from costs associated with several different crops. During fiscal year 1988, for example, corn deficiency payments on the 1986, 1987, and 1988 crops are made. Nonrecourse loan costs in fiscal year 1988 are mostly associated with the 1987 corn crop. In wheat, which is harvested earlier than corn, some nonrecourse loan costs for the 1988 crop year appear in fiscal year 1988.

lower corn prices in 1989, corn farmers will face strong incentives to participate in the government's corn program despite a lower target price. Participation is expected to fall to just under 80 percent of base acreage for the first time since 1985.

Production in crop years 1990 through 1994 is projected to range between 8.2 billion and 8.7 billion bushels per year, assuming increases in yields of about 2 percent a year for several years before falling to 1 percent in 1994. The projected slowdown in the growth of yields reflects a decline in net returns per bushel for producers, in part because the corn program becomes less attractive. Participation rates are projected to fall to 56 percent by 1994. However, the amount of acreage planted in corn is expected to hold steady, because the decline in acres idled in the ARP shows up mainly as increased acreage planted in soybeans.

Use. CBO projects that total use in the 1988 corn crop year, which began in September 1988, will fall 0.23 billion bushels, or 3 percent, from last year to 7.5 billion bushels, despite significantly higher prices. Domestic use of corn is expected to fall 0.43 billion bushels to 5.5 billion bushels, mainly because of reduced feeding of stock by livestock producers. Nonfeed domestic corn use during the 1988 marketing year is projected to remain at last year's level of 1.22 billion bushels. CBO projects that nonfeed use will expand to 1.28 billion bushels in the 1989 crop year, and will continue growing in later years at an annual rate of 2 percent to 3 percent.

CBO expects feed and residual use of corn to be 4.3 billion bushels for the 1988 marketing year, down 9 percent from last year. The January USDA grain stocks report implies that first quarter feed use was 1.3 billion bushels, down more than 150 million bushels, or 11 percent, from last year's 1.5 billion. The slowdown in corn feeding appears to be primarily related to reduced feeding rates rather than reduced animal numbers. In part, the reduced feeding rates are a response to the higher corn prices--on an October-to-December basis, corn prices averaged nearly 50 percent above last year's levels. In contrast, fed cattle (cattle which have been in feedlots and are now ready for slaughter) prices were up only 9 percent and hog prices were down by 11 percent. CBO projects that feed and residual use will rise significantly during the 1989 marketing year to 4.6 billion bushels because of sharply lower corn prices, but that they will remain below

1987's record level. In later years, feed use is expected to grow 1 percent to 3 percent per year as corn prices remain relatively stable.

CBO projects that exports this season will exceed 1.9 billion bushels or 49.1 million metric tons (mmt), 12 percent above last year's level, despite drought-induced higher prices. This projection, if realized, would mean the highest level of corn exports since the 1981 crop year. Through mid-January, commitments for U.S. corn exports were up nearly 40 percent and export inspections were up 16 percent from levels of a year ago. Large Soviet purchases, and drought-reduced coarse grain production in Canada, Argentina, and Australia helped boost U.S. sales this year. CBO expects total USSR corn imports to reach 16.5 mmt on an October-to-September basis, doubling last year's imports. Soviet purchases are being driven by poor grain production (186 mmt, down 11 mmt from last year) and the price attractiveness of corn relative to wheat. Coarse grain production by U.S. competitors is down nearly 4 mmt, about 7 percent below last year's level.

CBO projects that U.S. exports will decrease by 2 percent to 48 mmt during the 1989 marketing year from this year's level, assuming a return to normal weather conditions worldwide. The projected decline in exports would be much greater were it not for lower expected U.S. corn prices and a continued decline in the value of the U.S. dollar. In later years, U.S. exports are projected to rise 3 percent to 4 percent a year, maintaining roughly 75 percent of total world corn trade.

Prices and Stocks. CBO's estimates for 1988 crop production and use imply carryover stocks of 1.7 billion bushels, a reduction of more than 2.5 billion bushels from the previous year's level and the lowest level of stocks since the 1984 marketing year. This year's season-average farm price is expected to be $2.55 per bushel, up 31 percent from last year. However, assuming a return to normal growing conditions, combined with a large increase in corn plantings this spring, prices are expected to return to about $2.00 per bushel during the 1989 crop year and to rise slowly from that level in later years.

Government Costs

CBO projects that outlays for the feed grain program will fall to $3.0 billion in 1989, down from $9.1 billion in 1988; the drop reflects last summer's drought (see Table 9). This estimate does not include several billion dollars in disaster assistance payments to feed grain producers

TABLE 9. CORN AND FEED GRAIN PROGRAM OUTLAYS
(By fiscal year, in millions of dollars)

	Actual	Projected					
	1988	1989	1990	1991	1992	1993	1994
Corn Program Outlays							
Net Lending							
Loans Made	7,213	1,475	3,944	3,850	3,243	2,969	2,792
Cash Loans Repaid	-2,719	-2,582	-3,312	-3,350	-2,682	-2,420	-2,117
Net Loans	4,494	-1,107	632	501	561	549	675
CCC Storage, Transportation, Handling Costs	530	402	249	147	133	114	100
Direct Cash Payments							
Deficiency	1,353	995	1,919	3,041	2,368	1,641	1,034
Advanced Deficiency	1,292	2,143	1,945	1,640	1,125	699	409
Diversion[a]	6	0	0	0	0	0	0
Reserve Storage	424	228	145	126	119	119	119
Other	130	-143	-60	-1	5	14	47
Total Outlays	8,228	2,518	4,829	5,454	4,312	3,137	2,383
Feed Grain Program Outlays							
Sorghum, Barley, and Oats	825	450	654	658	558	408	233
All Feed Grains (Including corn)	9,053	2,968	5,482	6,112	4,870	3,546	2,616

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

a. Diversion payments for the 1988 crop were made entirely in generic certificates.

under the Disaster Assistance Act of 1988. Outlays are expected to rise to $5.5 billion and $6.1 billion in fiscal years 1990 and 1991, respectively, before falling steadily to $2.6 billion by 1994. The decline reflects a drop in deficiency payments because of falling target prices.

Corn program outlays will nearly double from an estimated $2.5 billion in 1989 to $4.8 billion in 1990. Outlays are expected to peak at $5.5 billion in 1991 before falling to $2.4 billion in 1994. The combined program outlays for grain sorghum, barley, and oats are expected peak at $0.7 billion in 1990 and 1991 before falling to $0.2 billion by 1994. CBO assumes that minor feed grain program costs will average around 10 percent of total feed grain outlays, in line with the historical average.

Total corn deficiency payments are projected to fall to $2.1 billion in the 1988 crop year, down sharply from the $6.0 billion level of the last two years. They will peak at $4.9 billion in the 1989 crop year before falling steadily to $1.0 billion in the 1994 crop year.

If target prices were assumed to remain at the 1990 crop level of $2.75 per bushel instead of declining as is assumed in Table 9, feed grain program outlays would rise by $5.3 billion over the 1991-1994 fiscal year period. Outlays would rise by over $300 million in 1991 because of increased advanced 1991 crop deficiency payments. In later years, the increase in costs would grow steadily, ranging from $1.1 billion in 1992 to $2.1 billion in 1994. Most of the increase in outlays would stem from higher deficiency payments and would translate directly into higher farm income.

WHEAT

The outlook for wheat farmers has improved following the 1988 drought. With a sharp drop in output both here and abroad and high export demand, prices are substantially above the loan rate and above previous expectations. Government-held stocks have been sharply reduced and total stocks are expected to remain low relative to use, buoying prices through the end of 1994.

Government Programs

For the 1989 crop, the ARP for wheat was reduced to 10 percent, from 27.5 percent in both 1987 and 1988. In later years, ARPs assumed in the baseline fall to 5 percent to reflect low ending stocks of wheat. Other programs that affect acreage include the 0/92 program and the CRP. Only about 4 million acres is expected to be idled in annual programs, including the ARP and the 0/92 program, by 1994. However, wheat base acreage in the long-term conservation reserve is assumed to increase from under 1 million acres in crop year 1986 to 10 million acres by 1990 and to remain at that level through 1994.

The baseline assumes that target prices beyond 1990 decline 3.8 percent a year--the rate of decline set for the final years of the Food Security Act. Other government program parameters assumed in the baseline include freezing of the program yield, and the use of discretion that allows the Secretary of Agriculture to drop the loan rate up to 20 percent below the basic formula-determined loan rate each year--the maximum reduction. Legislation restricting the use of multiple corporations to avoid the limitation on payments (the limitation on total payments from all farm income and price support programs) will reduce payments to some producers. However, the $50,000 limit will be reached by fewer wheat farmers because the deficiency payment rate is expected to remain lower than in recent years and to fall most years in the future. The Export Enhancement Program, limited to $770 million for fiscal 1989 by the appropriation legislation after reaching $1.2 billion in 1988, is expected to continue at high, but falling, annual levels. By 1994, it is expected to equal $500 million.

Supply and Demand

Production. Wheat production fell by 14 percent in 1988, both because plantings were reduced and yields fell. Acres planted to wheat fell because participation in the wheat program remained high despite the high ARP and because the CRP continued to expand. Yields fell sharply in spring wheat areas because of the 1988 drought. Production is expected to grow in the baseline period, approaching the 1981 record by 1994 (see Table 10). Production expands because the ARP is ex-

TABLE 10. WHEAT SUPPLY AND USE (By crop year)

	Actual	Projected						
	1987	1988	1989	1990	1991	1992	1993	1994
				Millions of Acres				
Base Acres (Net of CRP)	87.6	84.8	83.3	81.6	81.7	81.8	81.8	81.7
				Percent of Base Acreage				
Acreage Reduction								
ARP	27.5	27.5	10.0	5.0	5.0	5.0	5.0	5.0
PLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Participation in ARP	87.2	85.7	75.8	75.8	74.3	73.3	71.3	66.3
				Millions of Acres				
Total Conservation Use Acres	20.1	19.4	6.3	3.1	3.0	3.0	2.9	2.7
Acres Planted	65.8	65.5	75.8	77.0	78.0	78.8	78.7	79.2
Acres Harvested	56.0	53.2	66.4	66.3	67.1	67.8	67.7	68.1
				Bushels per Acre				
Yield Per Harvested Acre	37.7	34.1	37.1	38.4	38.9	39.4	40.0	40.5
Program Yield	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
				Millions of Bushels				
Supply								
Beginning Stocks	1,821	1,261	548	591	624	660	700	715
Production	2,107	1,811	2,462	2,542	2,607	2,668	2,706	2,760
Imports	16	22	20	20	21	21	21	21
Total	3,945	3,094	3,030	3,153	3,252	3,349	3,427	3,496
Use								
Domestic	1,091	1,046	1,076	1,098	1,119	1,141	1,157	1,176
Exports	1,592	1,500	1,363	1,431	1,473	1,508	1,555	1,595
Total	2,683	2,546	2,439	2,528	2,592	2,649	2,712	2,771
Ending Stocks	1,261	548	591	624	660	700	715	725
Farmer-Owned Reserve	467	278	51	6	0	0	0	0
CCC-Owned Stocks	283	155	206	195	185	175	175	175
Outstanding CCC Loans	178	20	25	25	25	25	25	25
Free Stocks[a]	333	95	309	398	450	500	515	525
				Dollars per Bushel				
Prices								
Target Price	4.38	4.23	4.10	4.00	3.85	3.70	3.56	3.42
Season Average Price	2.57	3.67	3.50	3.26	3.27	3.37	3.33	3.37
Loan Rate	2.28	2.21	2.06	1.97	1.99	2.14	2.16	2.13
Total Deficiency Payment Rate	1.81	0.69	0.70	0.84	0.68	0.43	0.33	0.15

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTES: See Glossary for an explanation of terms. CRP = Conservation Reserve Program; ARP = Acreage Reduction Program; PLD = Paid Land Diversion.

a. Category includes privately held stocks not being used as collateral for government loans.

pected to fall to 5 percent for crop years 1990 through 1994 and the participation rate is expected to fall as program benefits decline. The high level of wheat acreage under the 10-year CRP will keep wheat plantings below the levels reached in the early 1980s.

The overall wheat yield dropped almost 10 percent in 1988 and is expected to be below trend in 1989. With a trend of increasing yield in the baseline period, the record yield of crop year 1983 is surpassed by 1993. Even if the annual percentage for acreage reduction is minimal, annual production is close to expected use each year. Supplies in 1989 are expected to be the lowest in a decade, but over the baseline period supplies are assumed to rise slowly from 3 billion to 3.5 billion bushels. If market conditions dictated, production could be substantially increased by freeing acres currently in the CRP. Using CRP acreage would, however, require a major policy change.

Use. Total wheat use is projected to exceed the 1987 record by crop year 1993. The growth is caused by the expansion of exports and domestic food use, while feed and seed use are still low relative to the earlier 1980s. Feed use is expected to fall as corn prices remain competitive and lower planted acreage constrains seed use. Food use is likely to continue to rise by about 20 million bushels per year as new processed foods stimulate demand.

Exports are expected to continue to expand from the dismal levels in 1985 and 1986, but to lag behind the 1987 level--the second highest ever--until 1994. The United States is expected to regain roughly a 43 percent share of world trade in the 1988 crop year, because reduced supplies abroad are keeping demand high for U.S. wheat. The drop in wheat imports by the USSR (as corn purchases rose) in 1988 mirrors the drop in competitor supplies, but import demand elsewhere, especially in China, has remained strong despite high prices. U.S. exports are expected to fall in 1989 as competitor supplies increase. The U.S. share of world trade is expected to fall to 40 percent by 1990 and remain at about that level through 1994. Average growth of global wheat trade is expected to exceed population growth slightly, assuming reasonable economic growth abroad and no intensification of current debt problems throughout the world.

Prices and Stocks. Wheat stocks are expected to fall to under 550 million bushels by the end of crop year 1988, the lowest since 1974. In

later years, stocks are expected to increase somewhat. By 1994, stocks are projected to be 725 million bushels, less than 60 percent of the 1987 level. Most of those stocks will be privately held, with CCC inventory near the minimum mandated by law for international food security purposes. The CCC inventory declined sharply during the 1988 crop year, when the release of up to 1.5 million tons of wheat was authorized from the Food Security Reserve for use in overseas food aid programs. CBO assumes that the level in the Farmer-Owned Reserve will fall below the required minimum of 300 million bushels because season-average prices are expected to remain above 140 percent of the loan rate--the level at which the USDA can waive the minimum under current law.

The loan rate, which is based on the average of the market prices of the previous five years (minus the highest and the lowest), stops declining by the 1991 crop year. Market prices jumped in 1988 to an estimated $3.67 a bushel, only $.02 below the recent high of 1981 and up from $2.57 last year. Prices are expected to remain high in 1989 because of tight supplies and increased demand for free stocks. From 1990 to 1994, prices are expected to range between $3.26 and $3.37 a bushel. Annual variability of prices may increase, however, as total and government-held stocks fall to relatively low levels; total stocks are projected to be 26 percent of use by 1994 compared with almost 100 percent in 1985.

Government Costs

Government outlays for wheat appeared small in fiscal year 1988, as almost one-third of all deficiency payments made during the year were in generic certificates that were redeemed overwhelmingly in corn. However, the baseline assumes no payments in certificates for fiscal year 1989 or subsequent years. Outlays for wheat (excluding disaster payments to wheat farmers) fall sharply in fiscal year 1989 because the deficiency payment rate for the drought-reduced 1988 crop was more than halved and most of it was paid out in the advanced deficiency payment made in fiscal year 1988 (see Table 11). The final deficiency payments for the 1988 crop made in fiscal year 1989 will be small, and partial repayments of the advance will be made by some farmers who received disaster payments. The deficiency payment rate for the 1989

through 1991 crops is expected to remain near the 1988 level, but for the 1992-1994 crops the rate is expected to fall considerably as market prices stabilize while target prices continue to fall. A combination of the falling deficiency payment rate and reduced program participation reduces direct payments to wheat farmers in the later years of the baseline. With all payments made in cash, outlays for wheat will jump to $1.6 billion in fiscal years 1990 and 1991, but decline sharply to $0.6 billion by 1994. Almost all of the outlays come from direct deficiency payments to wheat farmers.

Because wheat stocks were released during the 1988 drought, projected loan activity declines sharply. For fiscal year 1989, a continuation of the heavy cash loan repayments seen in fiscal year 1988 will result in net savings in loan activity. In later years, net loan activity will be small, since market prices are expected to be substantially above loan rates. Loan redemptions may virtually equal

TABLE 11. WHEAT PROGRAM OUTLAYS
(By fiscal year, in millions of dollars)

	Actual	Projected					
	1988	1989	1990	1991	1992	1993	1994
Net Lending							
Loans Made	679	194	201	197	179	180	190
Cash Loans Repaid	-913	-303	-220	187	-201	-163	-192
Net Loans	-234	-108	-19	9	-22	18	-2
CCC Storage and Handling	190	85	79	72	66	63	61
Direct Cash Payments							
Deficiency	216	175	918	948	762	480	355
Advanced Deficiency	542	382	657	522	326	243	103
Reserve Storage	95	99	44	8	1	0	0
Other	-132	-210	-120	-2	31	35	66
Total Outlays	678	423	1,559	1,557	1,163	839	583

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

loans made each year, with only minimal loan volume carried over. Storage costs will fall to minimal levels as the Farmer-Owned Reserve empties and CCC stocks fall to approximately the legislative minimum for the Food Security Reserve.

RICE

During 1988, prices for rice weakened and stocks rose. The outlook is for prices to remain low through 1994 since increased use is met with higher production because the size of ARPs are gradually reduced. Deficiency payments and marketing loan costs remain relatively large as producer participation remains high and prices remain below the loan rate.

Government Programs

Target prices beyond 1990 are assumed to fall at the same rate of decline as in the final years of the Food Security Act--2.2 percent a year. The target price for rice is assumed to reach $9.80 a hundredweight (cwt) in crop year 1994 compared with $11.15 cwt in 1988. The minimum loan rate allowed under current law ($6.50 per cwt) is reached by 1989 and maintained thereafter. Rice producers, unlike wheat and feed grain producers, are not eligible for the 0/92 program. However, they are eligible for the 50/92 program--in which producers receive 92 percent of the expected deficiency payment if they plant rice on at least 50 percent of their permitted acreage. The baseline assumes that neither the CRP nor the 50/92 program will attract much rice acreage. CBO assumes that the Marketing Loan Program will continue. Effective with the 1989 crop, restrictions on reorganizing to avoid the payments limitation may curtail payments to some producers in the rice program.

Supply and Demand

Production. The announced ARP percentage for rice has been set at 25 percent for the 1989 crop, the same as in 1988. With projected increases in use, ARP percentages are assumed to decline slowly to 17.5 percent in 1994 to keep ending stocks at about 20 percent of use (see Table 12). Participation in the rice programs is expected to remain near the maximum level because of large program benefits. In 1989 planted acreage in rice is expected to be down marginally, but plantings are projected to rise slowly over the next five years and by 1994 to be about 10 percent higher than in 1988. Yields, which rose rapidly in the early 1980s, are expected to rise more slowly over the projection period. The additional acreage that comes into production as the required set-aside falls slowly, together with somewhat higher yields, may result in almost 20 percent more production by the 1994 crop year compared with 1988.

Use. Use is expected to continue its recent increase, with exports accounting for almost half of total rice use by crop year 1994. U.S. price competitiveness has been restored since the April 1986 advent of the marketing loan, which allows U.S. farmers to repay loans at the farm-level equivalent of world prices. U.S. exports accounted for about one-fifth of world trade in calendar year 1988, in line with the levels of recent years. In 1989, the export share may rise because the U.S. price premium over competitors has fallen during the 1988 crop year and because extensive use of export credit guarantees for rice exports continues. Exports are expected to increase each year during the projection period, but to remain below the record of the 1980 crop year. The level of future global imports, however, depends on changes in annual output caused by weather conditions and on economic conditions, especially in developing countries, the major market for U.S. rice exports. The key factors in the strength of developing country markets include oil prices and debt repayment capacity. The baseline assumes neither a further erosion of the financial situation nor a major improvement.

Domestic use of rice in foods is expected to continue rising at 3 percent to 4 percent annually. The major use continues to be as direct foods, with brewers' use second. However, over the last 10 years the use of rice in processed foods such as candy, cereals, soups, and frozen dinners, has almost doubled.

TABLE 12. RICE SUPPLY AND USE (By crop year)

	Actual	Projected						
	1987	1988	1989	1990	1991	1992	1993	1994
				Thousands of Acres				
Base Acres (Net of CRP)	4,183	4,173	4,193	4,213	4,233	4,253	4,273	4,293
				Percent of Base Acreage				
Acreage Reduction Program	35.0	25.0	25.0	22.5	20.0	20.0	17.5	17.5
Participation in ARP	95.0	92.0	95.0	96.0	96.0	96.0	96.0	95.0
				Thousands of Acres				
Acres Planted	2,355	2,930	2,802	2,973	3,080	3,128	3,223	3,211
Acres Harvested	2,333	2,900	2,782	2,953	3,060	3,108	3,203	3,191
				Pounds per Acre				
Yield Per Harvested Acre	5,555	5,511	5,651	5,674	5,709	5,756	5,795	5,855
Program Yield	4,683	4,700	4,700	4,700	4,700	4,700	4,700	4,700
				Millions of Cwt				
Supply								
Beginning Stocks	51.4	31.4	36.1	32.0	31.7	33.3	34.0	36.3
Production	129.6	159.5	157.2	167.5	174.7	178.9	185.6	186.8
Imports	3.0	3.2	3.5	3.5	3.5	3.5	3.5	3.5
Total	184.0	194.1	196.8	203.0	209.9	215.7	223.1	226.7
Use								
Domestic	80.4	83.9	87.2	90.6	94.1	97.8	101.4	105.4
Exports	72.2	74.1	77.7	80.7	82.6	83.9	85.3	86.4
Total	152.6	158.0	164.9	171.2	176.6	181.7	186.8	191.8
Ending Stocks	31.4	36.1	32.0	31.7	33.3	34.0	36.3	34.9
CCC-Owned Stocks	0.0	4.1	0.0	0.0	0.8	1.5	3.8	2.4
Free Stocks[a] and Outstanding CCC Loans	31.4	32.0	32.0	31.7	32.5	32.5	32.5	32.5
				Dollars per Cwt				
Prices								
Target Price	11.66	11.15	10.80	10.71	10.48	10.25	10.02	9.80
Loan Rate	6.84	6.63	6.50	6.50	6.50	6.50	6.50	6.50
Season Average Price	6.95	6.00	5.50	5.25	5.30	5.40	5.50	5.60
World Price	5.40	5.38	4.55	4.75	4.80	4.90	5.00	5.10
Deficiency Payment Rate	4.82	4.40	4.30	4.21	3.98	3.75	3.52	3.30

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTES: See Glossary for an explanation of terms. CRP = Conservation Reserve Program; ARP = Acreage Reduction Program; cwt = hundredweight.

a. Privately held stocks not being used as collateral for government loans.

Prices and Stocks. Ending stocks are forecast to be up significantly in 1988 because the ARP fell from 35 percent to 25 percent, thereby increasing production more than demand. However, stocks are still low relative to levels for most of the 1980s. The CCC is expected to take over some rice through nonrecourse loan defaults in 1988 after ridding itself of rice inventories in 1987, but such holdings are likely to be the second lowest since 1981. Both free stocks and CCC inventory in 1990 to 1994 are expected to remain relatively low.

Season-average farm prices for rice are projected to continue falling through 1990 and to rise slightly thereafter. Farm prices are expected to range between $5.25 and $6.00 per cwt from 1988 to 1994, substantially below prices in the late 1970s through the mid-1980s.

Government Costs

Projected outlays for the rice program were quite low in fiscal year 1988 because almost all of the final 1987 crop deficiency payment and half of the 1988 crop advanced deficiency payment were made in certificates, which were redeemed overwhelmingly in the corn program (see Table 13). All future payments are assumed to be made in cash; so direct outlays jump sharply in fiscal year 1989 to $660 million and fall slowly to over $530 million by 1994. The deficiency payment rate continues to fall with the decline in target prices and a constant loan rate; market prices remain significantly below the loan rate throughout the projection period.

Total outlays are projected to rise from $128 million in fiscal year 1988 to over $900 million in fiscal year 1989 and to remain between $900 and $830 million for 1990 to 1994. Net loan outlays--the marketing loan benefit that equals the difference between the value of loans made at the loan rate and loans repaid at the equivalent world price--range between $250 and $320 million during each year of the projection period.

Projected outlays for rice are about $250 million larger for fiscal years 1991 through 1994 if the baseline were to assume that target prices for the 1991 to 1994 crops were frozen at the 1990 level of $10.71 per cwt. By fiscal year 1994 the difference is $120 million, as the

deficiency payment rate is $0.70 higher in crop year 1993 and $0.90 higher in crop year 1994 with frozen target prices than with the baseline declining prices.

COTTON

Cotton prices are falling to below the loan rate in 1988, leading to loan forfeitures even with a marketing loan in place. The halving of the 1988 ARP percentage and a decline in both domestic use and export demand have raised forecast ending stocks this year. In future years, the ARP percentage is projected to jump back to 25 percent and remain at that level. Even with a resurgence of mill use and exports in later years, stocks are not expected to fall below the 1987 level until 1993 and prices are likely to remain below the 1987 level over the projection

TABLE 13. RICE PROGRAM OUTLAYS
(By fiscal year, in millions of dollars)

	Actual	Projected					
	1988	1989	1990	1991	1992	1993	1994
Net Lending							
Loans Made	862	983	1,015	1,078	1,127	1,157	1,194
Cash Loans Repaid	-824	-725	-699	-776	-824	-861	-899
Net Loans	39	257	316	302	303	296	295
CCC Storage and Handling	6	3	3	0	1	2	4
Direct Cash Payments							
Advanced Deficiency	45	177	183	180	172	166	155
Regular Deficiency	0	483	395	412	407	389	377
Other	38	0	0	0	0	0	0
Total Outlays	128	920	896	893	882	853	831

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

period. However, with market prices above the loan rate and rising over the baseline period, reliance on the loan program diminishes and deficiency payments fall.

Government Programs

The baseline assumes a continued decline in cotton target prices beyond the 1990 crop year at the same annual rate of decline set in the final years of the Food Security Act--2.2 percent. Loan rates are assumed to be frozen at the minimum of $0.50 per pound from 1989 to 1994, and the Marketing Loan Program is assumed to be continued. Cotton producers, like rice producers, are eligible for the 50/92 program but not for the 0/92 program. Around 10 percent of base acreage is expected to be idled in the 50/92 program and the CRP combined. Legislation to restrict the use of corporations to evade the payments limitation may constrain payments to some farmers.

The Marketing Loan Program removes the price-supporting effect of the nonrecourse loan rate. If cotton prices move below the loan rate, producers may repay loans at the market price. USDA adjusts the repayment prices for marketing loans in cotton-growing regions based on a calculated world price. In theory, the program avoids loan forfeitures and large government inventories of cotton. However, in recent months producers' repayments have slowed and forfeitures now appear likely. Recently, USDA changed its loan redemption procedures to encourage producers to repay loans with cash. If the repayment price is below the loan rate and producers repay loans with cash, interest and warehouse charges are forgiven. If the repayment rate is above the loan rate, such charges will be reduced to permit loan collateral to be redeemed with cash at the adjusted world price.

Supply and Demand

Production. The crop year 1989 ARP for cotton will be 25 percent, double that of the previous year, since stocks are expected to rise sharply during crop year 1988 (see Table 14). CBO projects 1989

TABLE 14. UPLAND COTTON SUPPLY AND USE (By crop year)

	1987 Actual	Projected						
		1988	1989	1990	1991	1992	1993	1994
				Millions of Acres				
Base Acres (Net of CRP)	13.09	13.17	12.60	12.40	12.40	12.40	12.40	12.40
				Percent of Base Acreage				
Acreage Reduction Program	25	12.5	25	25	25	25	25	25
Participation in ARP	92	88	87	87	86	84	76	72
				Millions of Acres				
Total Conservation Use Acres	3.22	1.60	2.74	2.70	2.68	2.61	2.34	2.22
Acres Planted	10.27	11.96	10.43	10.23	10.24	10.29	10.44	10.51
Acres Harvested	9.90	11.68	9.96	9.77	9.78	9.83	9.97	10.04
				Pounds per Acre				
Yield Per Harvested Acre	702	619	624	629	634	639	644	649
Program Yield	593	590	590	590	590	590	590	590
				Millions of Bales				
Supply								
Beginning Stocks	4.94	5.72	9.14	8.88	8.33	7.45	6.50	5.64
Production	14.48	15.07	12.95	12.81	12.92	13.08	13.38	13.57
Total (Including imports)	19.42	20.79	22.10	21.69	21.26	20.53	19.88	19.21
Use								
Domestic Mill	7.57	6.85	7.12	7.24	7.31	7.39	7.52	7.53
Exports	6.35	4.90	6.20	6.21	6.60	6.75	6.82	6.91
Total (Including unaccounted)	13.70	11.65	13.22	13.35	13.81	14.04	14.24	14.34
Ending Stocks	5.72	9.14	8.88	8.33	7.45	6.50	5.64	4.87
CCC-Owned Stocks	0.00	0.30	0.40	0.30	0.20	0.10	0.00	0.00
Outstanding CCC Loans	3.16	6.74	6.38	5.93	5.15	4.30	3.54	2.77
Free Stocks[a]	2.56	2.10	2.10	2.10	2.10	2.10	2.10	2.10
				Dollars per Pound				
Prices								
Target Price	0.794	0.759	0.734	0.729	0.713	0.698	0.683	0.668
Loan Rate	0.523	0.518	0.500	0.500	0.500	0.500	0.500	0.500
Loan Repayment Rate	0.523	0.470	0.500	0.500	0.500	0.500	0.500	0.500
World Price	0.600	0.470	0.501	0.522	0.526	0.554	0.565	0.592
Season Average Price	0.630	0.485	0.496	0.517	0.521	0.549	0.560	0.587
Calendar Year Average Price	0.621	0.520	0.489	0.504	0.519	0.532	0.553	0.572
Deficiency Payment Rate	0.173	0.239	0.234	0.225	0.195	0.166	0.130	0.097

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTES: See Glossary for an explanation of terms. CRP = Conservation Reserve Program; ARP = Acreage Reduction Program; PLD = Paid Land Diversion.

a. Privately held stocks not being used as collateral for government loans.

production of almost 13 million bales of upland cotton, down from the two previous years. Planted acreage in 1989 is expected to fall by 13 percent, more than offsetting the slightly higher expected yield.

In later years, production is expected to rise slowly, in line with the assumed yield trend, from 12.8 million bales in crop year 1990 to 13.6 million bales by 1994. Production in all the projection years is expected to be below 1987 and 1988 levels, which were buoyed by the record 1987 yield and the low 1988 ARP percentage. During the 1990-1994 period, ARPs are assumed to be set at 25 percent. Program participation rates will probably remain high, falling to 72 percent by 1994, as the deficiency payment rate remains large relative to market prices. CBO assumes that planted acreage over this period will hover around 10.2 million to 10.5 million acres and yields will grow 5 pounds per acre annually. However, this yield trend still leaves the 1994 yield short of the 1987 record.

Use. Cotton is expected to remain competitive with synthetics, and the downward trend of cotton mill use over the past several decades is expected to be reversed. CBO projects that mill use will range between 7.1 million and 7.5 million bales over the projection period. However, the high levels of mill use in the 1986 and 1987 crop years are not expected to be reached until near the end of the projection period. Cotton mill use is highly correlated with economic conditions, and differences in actual future economic growth from the baseline projections will be more significant for cotton mill use than for domestic use of most other program commodities. Another factor influencing domestic mill use of cotton is the level of textile imports. The baseline assumes a continuation of U.S. trade policy that limits textile imports by quotas.

Exports are forecast to fall over 20 percent in crop year 1988 to the second lowest level in the 1980s. Exports in 1985 were dismally low as buyers waited for the introduction of the marketing loan with the 1986 crop. World import demand for raw cotton is down this year because of good crops abroad, the shift in preference among fibers away from cotton, and the decline in demand for certain cotton fabrics. The United States is absorbing much of the loss in foreign global demand for raw cotton, partly because the Marketing Loan Program is keeping U.S. cotton prices higher than they would otherwise be if producers were repaying their loans and marketing their cotton. Exports are

expected to rebound next year as synthetic prices rise and competitor supplies tighten. Exports are expected to rise to 6.2 million bales in 1989, above 1988 but below the two previous years, and to rise to 6.9 million bales by 1994.

The annual variability in cotton exports has been extremely high historically. U.S. exports compete not only with foreign cotton production but also with foreign use of synthetics in textiles. In addition, the level of foreign textile output is sensitive to economic conditions and trade restrictions. The outlook for cotton export demand is further complicated by the fact that oil prices influence the competitiveness of synthetics.

Prices and Stocks. Ending stocks of cotton are estimated to rise by 60 percent in the 1988 crop year, but to fall continuously thereafter because of a return to maximum ARPs and increasing use. The stocks-to-use ratio for 1987 was 41 percent, but it is expected to jump to 78 percent in 1988, the second highest in this decade. The ratio is expected to fall continuously to 34 percent by 1994, the lowest level since 1980. Forfeitures to CCC inventory are expected to occur, but CCC holdings are expected to peak in crop year 1989. Prices are expected to fall by 23 percent in the 1988 crop year to the lowest level since 1977. Prices are expected to rise throughout the baseline period, but by 1994 they are still expected to be below the 1987 level.

Government Costs

Outlays for the cotton program under the CBO baseline are projected to quadruple in fiscal year 1989 (see Table 15). All deficiency payments made in fiscal year 1989 and beyond are assumed to be made in cash compared with only 23 percent of fiscal year 1988 payments. The remainder of the 1988 deficiency payments were made in generic certificates, most of which were redeemed in the corn program. The biggest increase in 1989 outlays is expected to be in the final deficiency payments for the 1988 crop, since the deficiency payment rate is forecast at about one-third above the 1987 level. Net loan outlays are also expected to be sharply higher, because low prices have encouraged heavy use of the loan program. Reduced use of the loan program in future years is expected to account for the drop in cotton outlays in

fiscal year 1990 and later years. In addition, declines in deficiency payments, accelerating after 1991, allow direct payments to decline. By 1994 cotton outlays are projected at $340 million.

Outlays for cotton would be higher if target prices were assumed to be frozen at the 1990 level of $.729 per pound for the 1991-1994 crops. The outlays with frozen target prices would be about $860 million higher than the CBO baseline with declining target prices over fiscal years 1991 to 1994. By fiscal year 1994, outlays would be about $400 million higher, since the deficiency payment rate for crop year 1994 is almost double that of the CBO baseline.

SOYBEANS

Last summer's drought has dominated the supply and demand picture for the 1988 crop of soybeans. With U.S. soybean supplies at their

TABLE 15. UPLAND COTTON PROGRAM OUTLAYS
(By fiscal year, in millions of dollars)

	Actual	Projected					
	1988	1989	1990	1991	1992	1993	1994
Net Lending							
Loans Made	1,433	2,123	1,710	1,698	1,701	1,667	1,511
Cash Loans Repaid	-986	-827	-1,604	-1,727	-1,812	-1,818	-1,693
Net Loans	447	1,296	106	-29	-111	-152	-182
CCC Storage and Handling	8	31	75	72	66	58	47
Direct Cash Payments							
Advanced Deficiency	202	301	311	268	222	156	111
Regular Deficiency	10	963	857	726	626	518	364
Loan Deficiency	0	106	0	0	0	0	0
Total Outlays	666	2,697	1,349	1,038	803	579	340

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

lowest level in several years, prices have risen well above last year's level to curb demand. Despite this year's oilseed planting program, the increase in 1989 soybean acreage is likely to be only about 4 percent. The CBO baseline projects that soybean prices will remain well above nonrecourse loan levels. As a result, soybean program outlays are expected to be insignificant.

Government Programs

The soybean loan rate is expected to decline to $4.53 per bushel for the 1989 crop, 5 percent below this year's loan rate and the maximum annual decline allowed under current law. In later years, the loan rate is expected to remain at $4.50, the minimum level allowed in the Food Security Act of 1985. The discretion of the Secretary to operate a Marketing Loan Program for soybeans is assumed not to be used. Soybean plantings this spring will be influenced by the oilseed planting program (see page 42). However, the CBO baseline assumes that the Secretary will not offer this program in later years.

Supply and Demand

Production. Last year's drought-affected crop of 1.5 billion bushels was nearly 400 million bushels or 20 percent smaller than the previous year's harvest (see Table 16). Planted acreage in 1989 is expected to rise to 61 million acres, up 2.1 million from 1988, mainly because of the Disaster Assistance Act's oilseed planting program. Based on the initial sign-up, producers could plant without penalty a maximum of 2.8 million acres of soybeans on acres permitted for wheat, feed grain, cotton, or rice. However, since the initial sign-up was nonbinding, most analysts believe that it overstates actual intentions to switch to soybeans. CBO projects that 2 million acres will switch into soybeans associated with the program. Production will fall slightly in 1990 as the oilseed planting program ends, but will continue to rise in later years because of increases in acreage and per-acre yields.

Use. Soybean exports are projected to be 560 million bushels in 1988, down 30 percent from last year's levels. Through the end of December, export shipments were down 25 percent from last year's levels, in line

with the baseline projection. Favorable prospects for soybean crops in Brazil, that are more than offsetting the drought-reduced Argentine crop, are likely to prevent any large increase in U.S. exports this spring and summer. Soybean exports during the 1989 marketing year will probably recover from this year's level. Increases, however, will be constrained by continuing emphasis on soybean production in South America.

TABLE 16. SOYBEAN SUPPLY AND USE (By crop year)

	Actual	Projected						
	1987	1988	1989	1990	1991	1992	1993	1994
				Millions of Acres				
Acres Planted	58.0	58.9	61.0	58.5	59.1	59.4	59.8	60.5
Acres Harvested	57.0	57.4	59.9	57.4	58.0	58.3	58.7	59.4
				Bushels per Acre				
Yield per Harvested Acre	33.7	26.8	32.8	33.1	33.5	33.8	34.1	34.5
				Millions of Bushels				
Supply								
Beginning Stocks	436	302	140	247	257	261	260	258
Production	1,923	1,539	1,965	1,901	1,939	1,969	2,003	2,047
Total	2,359	1,841	2,104	2,147	2,197	2,230	2,263	2,305
Use								
Crushings for Oil and Meal	1,174	1,042	1,089	1,109	1,136	1,158	1,180	1,206
Seed, Feed, and Residual	81	95	96	96	96	96	96	96
Exports	802	564	672	684	703	716	729	746
Total	2,057	1,701	1,858	1,890	1,935	1,970	2,005	2,048
Ending Stocks	302	140	247	257	261	260	258	257
CCC-Owned Stocks	-0	-0	-0	-0	-0	-0	-0	-0
Outstanding CCC Loans	25	0	10	10	10	10	10	10
Free Stocks[a]	278	140	237	247	251	250	248	247
				Dollars per Bushel				
Prices								
Farm Price	6.15	7.52	5.56	5.59	5.49	5.51	5.54	5.49
Loan Rate	4.77	4.77	4.53	4.50	4.50	4.50	4.50	4.50

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

a. Privately held stocks not being used as collateral for government loans.

Domestic crushing of soybeans for soybean meal during the first quarter of the 1988 marketing year was 7 percent lower than a year ago, roughly in line with CBO's expectations. The use of soybean meal by domestic livestock producers has slowed in recent months in the face of relatively high meal prices. For the 1988 season, the crush is expected to decline by 11 percent. Crushing next season should return to around 1.09 billion bushels, close to the level of the 1987 marketing year. However, future increases will be hampered by meal exports from Brazil and Argentina.

Prices and Stocks. Soybean stocks at the end of the 1988 marketing year are expected to be at very low levels, reflecting the reduced supplies entering the marketing year. Given normal weather this spring, CBO expects some stock rebuilding during the 1989 marketing year to around 250 million bushels. Stocks are projected to stay close to this level in later years. The 1988 season-average price is expected to be about $7.50, up 22 percent from last year. Prices so far have been in line with this expectation; however, near-term prices will be volatile because of uncertainty about South American harvests and concern about persistent dry conditions in the major U.S. growing areas. Assuming normal weather in 1989, soybean prices should fall to around $5.60 and remain around that level in later years.

Government Costs

Given market prices well above nonrecourse loan levels, soybean program outlays will be insignificant. Soybean program outlays will again be negative in 1989 as they were last year (see Table 17). Net loan repayments of about $100 million are expected in 1989, as producers are expected to repay all nonrecourse loans by the end of the marketing year. Positive outlays are expected to reappear in 1990, reflecting a small increase in loan activity. In later years, outlays will be very small.

Freezing target prices at the 1990 crop level would have little effect on soybean program outlays. However, freezing target prices would make the feed grains program more attractive to producers and would be likely to keep some acreage from moving out of corn and into

soybeans. Thus, soybean prices would increase relative to baseline levels for the 1991-1994 crops.

LAND USE

Planted acreage of major supported crops--feed grains, wheat, rice, cotton, and soybeans--is expected to rise sharply in 1989 from the level of the last few years (see Figure 2). USDA responded to last summer's drought by scaling back acreage reduction requirements for farmers participating in 1989 crop programs. CBO assumes that in later years, planted acreage will increase slowly from the 1989 level. Plantings are expected to reach 265 million acres in 1989, up 10 percent from the 1988 level. Most of increase in planted acreage will come in feed grains and wheat.

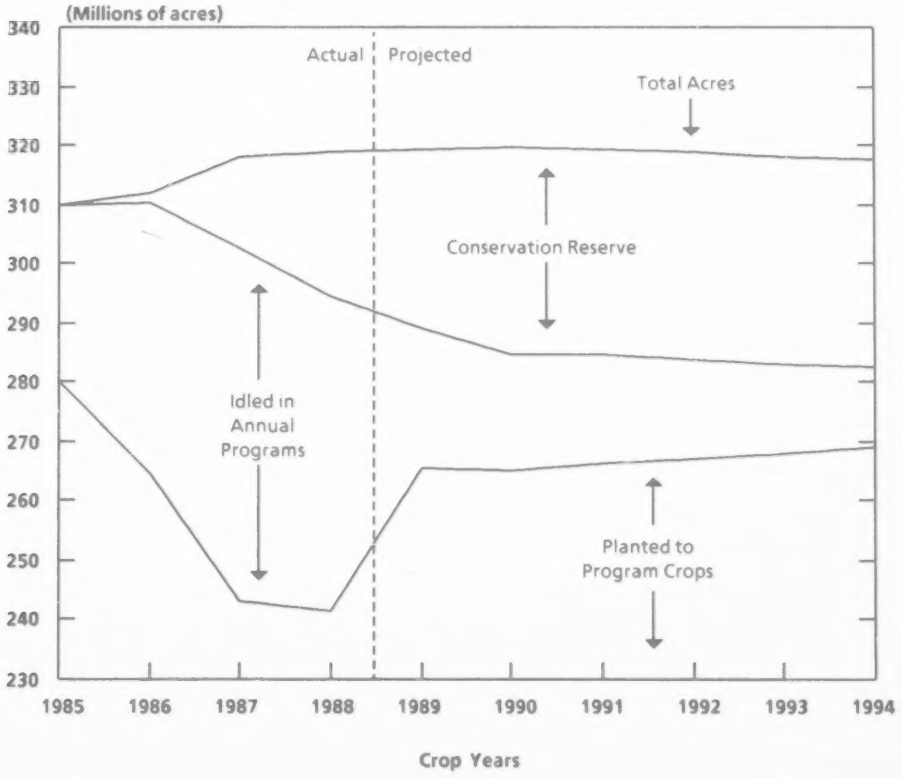
TABLE 17. SOYBEAN PROGRAM OUTLAYS
(By fiscal year, in millions of dollars)

	Actual	Projected					
	1988	1989	1990	1991	1992	1993	1994
Net Lending							
Loans Made	1,283	358	453	540	563	563	563
Cash Loans Repaid	-1,675	-475	-408	-540	-563	-563	-563
Net Loans	-393	-118	45	-0	0	-0	-0
Inventory Management							
CCC Storage and Handling	24	-0	-0	-0	-0	-0	-0
CCC Sales	-1,332	0	0	0	0	0	0
CCC Purchases	0	0	0	0	0	0	0
Other	24	22	22	18	18	18	18
Total Outlays	-1,676	-96	67	18	18	18	18

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

Figure 2 also shows acreage idled in the government's annual acreage reduction programs (ARP, paid diversion, and the 0/92 and 50/92 programs) and land in the CRP. Land idled under the annual programs is expected to drop close to 24 million acres in 1989 from 53 million acres in 1988. While most of the land released from the annual programs will return to crop production, about 6 million acres will be accepted into the CRP. The CBO baseline assumes that the CRP will reach 35 million acres in 1990, up from 30 in 1989, but will not grow in later years despite the current law minimum of 40 million acres.

Figure 2.
Program Crop Acreage



SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

Given the baseline assumption about acreage reduction requirements, CBO assumes that the Secretary of Agriculture will be unable to meet the minimum CRP level without accepting bids from farmers well above levels allowed under current regulations.

Total acreage committed to the program crops--the sum of planted and idled acres under any program--is expected to peak during the next several years at about 320 million acres before a slow decline occurs in later years. The decline reflects falling per-acre returns to program crop production brought about by the baseline assumption that target prices will be allowed to continue falling beyond the 1990 crop years.

DAIRY

The projected dairy program outlays would rise slightly to $859 million in 1990 owing to higher milk support prices provided in the Disaster Assistance Act of 1988. Outlays are expected to decrease over the 1990-1994 period as milk support prices and government acquisitions both decline (see Table 18). The milk market is in a period of transition, marked by changes in the composition of demand for its products. World demand for nonfat dry milk has been strong and, as a result, the CCC has not acquired any of this product since early July 1988. In contrast, butter, which is a joint product of nonfat dry milk, now accounts for more than 90 percent (on a milk-equivalent, fat-solid basis) of CCC acquisitions and cheese less than 10 percent.

Government Programs

The Disaster Assistance Act of 1988 keeps the 1989 milk price support at the 1988 level of $10.60 per cwt. It also increases the support price by $0.50 during the April-June quarter of 1989 to $11.10. The baseline assumes that $0.50 reductions will occur in January 1990, 1991, and 1992 because CCC net removals of dairy products are expected to exceed 5 billion pounds of milk equivalents on a calendar year basis. Milk support prices are projected to remain at $9.10 in later years because net removals are expected to fall between 2.5 billion and 5

TABLE 18. DAIRY SUPPLY AND USE, AND DAIRY PROGRAM OUTLAYS (By fiscal year)

	1988 Actual	Projected					
		1989	1990	1991	1992	1993	1994
		Supply					
Herd Size (Thousands)	10,286	10,251	10,243	10,212	10,087	9,983	9,968
Yield (Cwt per cow)	140.10	142.62	145.29	148.36	151.02	154.08	157.15
		(In billions of pounds)					
Beginning Commercial Stocks	5.4	4.7	5.4	5.4	5.4	5.4	5.4
Production	144.1	145.7	148.8	151.5	152.3	153.8	156.7
Imports	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Total	152.0	152.9	156.7	159.4	160.2	161.7	164.6
		Use (In billions of pounds)					
Commercial	136.0	138.5	141.2	143.9	146.5	149.2	151.7
Farm	2.2	2.2	2.2	2.2	2.2	2.1	2.1
CCC Net Removals[a]	9.08	6.78	7.94	7.95	6.20	5.01	5.36
Ending Commercial Stocks	4.7	5.4	5.4	5.4	5.4	5.4	5.4
Total	152.0	152.9	156.7	159.4	160.2	161.7	164.6
		Prices (In dollars per cwt)					
Support Price[b]	10.60	10.60	10.10	9.60	9.10	9.10	9.10
All Milk Price[c]	12.09	12.50	10.77	10.12	9.82	9.94	9.80
		Outlays (In millions of dollars)					
Purchases	1,056	527	653	581	530	504	436
Dairy Termination Payment	270	189	189	89	12	0	0
Assessments[d]	-57	-9	0	0	0	0	0
Net Other Costs	27	11	17	18	15	13	15
Total	1,295	718	859	688	557	517	451

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTE: cwt = hundredweight.

a. Net purchase of dairy products (milk equivalents) for the purpose of supporting the farm price of milk.

b. Support prices are in effect for the 12 months following January 1 of each year, except for 1989. For April through June 1989, the support price rose to $11.10 per cwt.

c. Average price received by farmers for milk.

d. Offsetting receipts from farmers based on sales of milk.

billion pounds. Payments under the dairy termination program, which ended in September 1987, would continue to be made to the participating producers through fiscal year 1992.

Supply and Demand

Production. Although the milk cow herd is projected to decline slowly, milk output is expected to expand throughout the projection period, from 146 billion pounds during the 1989 marketing year (October 1988 through September 1989) to 157 billion pounds by 1994. The increase in yield per cow is expected to be less than 2 percent during the 1989 marketing year because of drought-induced higher feeding costs. In later years, yield increases are expected to average 2 percent. This increase in yield per cow more than compensates for the decline in cow numbers and is largely responsible for the expected reductions in the support price.

Use. Domestic consumption of fresh milk and dairy products, in aggregate, is projected to grow at a steady rate of close to 2 percent a year because of declining milk prices. Commercial demand for nonfat dry milk, especially commercial export sales to developing countries, is expected to stay strong in the near term. The tight market situation in international nonfat dry milk was caused by the drop in both European and U.S. milk surpluses since the mid-1980s.

Prices and Stocks. The milk support price declines from $10.60 per cwt during the 1989 marketing year to a projected $9.10 in 1992 through 1994. In response, market prices decline until 1992. After 1992, milk prices are projected to stabilize at slightly less than $10 per cwt.

CCC-owned stocks of dairy products are relatively low at the beginning of 1989, especially for cheese and nonfat dry milk. The inventory level is expected to remain low because CCC's annual net removals fall during the projection period. Domestic feeding programs, such as school lunches, have been reduced. In addition, other domestic and foreign donations, such as the Temporary Emergency Food Assistance Program (TEFAP) cheese donations and Section 416 of the

Agricultural Act of 1949 overseas donations, have been terminated. However, butter stocks are still sizable.

Government Costs

Because of slower increases in milk production, growing domestic demand, commercial stock rebuilding, and good opportunities for exports, CCC purchases for cheese and nonfat dry milk remain small during the projection period. Outlays for the dairy program are expected to fall from $859 million in fiscal year 1990 to under $500 million in 1994. Purchases of dairy products account for the major share of outlays, with spending on the dairy termination program ending by fiscal year 1992.

CHAPTER IV

THE GATT, FARM POLICY, AND FEDERAL FARM SPENDING

The CBO baseline projections assume that current U.S. farm policy remains in place during the projection period and that the agricultural policies of other nations do not change. The Uruguay Round of the General Agreement on Tariffs and Trade (GATT) is at its midpoint (see Box 4). These negotiations have the potential to alter farm policies around the world. As a result, the outcome of the Uruguay Round could significantly affect the baseline projections of U.S. agricultural spending.

THE IMPORTANCE OF THE NEGOTIATIONS

In addition to the well-accepted economic principle that comparative advantage allows countries to benefit from trade liberalization, the United States has several specific reasons for interest in the agricultural negotiations of the Uruguay Round:

- U.S. agricultural policies have macroeconomic consequences.
- American agriculture depends heavily on volatile and often highly protected export markets.
- The United States would prefer multilateral to unilateral agricultural policy reform.

Macroeconomic and Budgetary Consequences of Agricultural Policies

CBO projects that direct governmental expenditures for U.S. agriculture will remain in the $11.2 billion to $5.8 billion range during the next five years. A successful conclusion to the Uruguay Round might facilitate agricultural program spending reductions in the United States and elsewhere.

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BOX 4

THE STATUS OF THE URUGUAY ROUND

The Uruguay Round began in September 1986 and is scheduled to last until 1990. A midterm review was held in Montreal in December 1988 to evaluate progress made thus far and to establish procedures and timetables for the remainder of the round. Substantial progress was made in all of the 15 negotiating groups except agriculture, intellectual property rights, textiles and clothing, and safeguards. Discussions in Geneva in April 1989 concluded with agreements on these remaining four negotiating frameworks.

Negotiating Positions. Agriculture has always received special treatment under the GATT. The United States and the Cairns Group (Argentina, Australia, Brazil, Canada, Chile, Colombia, Hungary, Indonesia, Malaysia, New Zealand, Philippines, Thailand, and Uruguay) share the view that agriculture should eventually operate under the same rules as other sectors of the economy, but their view of short-term goals has differed. In contrast to the Cairns Group, the United States had refused to propose short-term measures until the April agreement. At that time, all parties agreed that they will "within the scope of their existing legislation and their existing GATT rights and obligations, undertake to ensure that current domestic and export support are not exceeded" during 1989 and 1990.

The European Community, Japan, and the Nordic countries have a common short-term goal of reducing the practices that have produced recent trade tensions. Their long-term goals are less clear, but some would favor a market-sharing agreement. As a result of the Geneva agreement, all parties have agreed to a long-term goal of "substantial progressive reductions in agricultural support and protection sustained over an agreed period of time, resulting in correcting and preventing restrictions and distortions in world agricultural markets." The long-term agreement conforms with the tone if not the letter of the U.S. and Cairns positions.

Impediments to Agreement. Several factors contributing to past difficulties in the agricultural negotiations might continue to hamper progress. Most of these factors relate to the EC or the United States. Serious divisions exist within the EC regarding the future direction of agricultural policy. Since policy reforms tend to require consensus, these divisions constrain the ability of the EC to make dramatic changes in their Common Agricultural Program (CAP). During the mid-1980s, the high cost of the main components of the CAP (high support prices for grains, dairy, beef, oilseeds, and wine; protection from import competition through the use of a variable levy that adjusts in response to changes in the world price for these commodities; and export subsidies to enable the community to dispose of surplus production) produced pressures for reform. These pressures have been reduced by a tax increase and the drought-induced increases in prices for supported commodities. Finally, the EC is in the midst of the "1992" process, which is to result in the elimination of all internal barriers to the movement of goods, labor, and capital. Some feel that this important change in its economic structure will increasingly monopolize the attention of policymakers in the EC.

The U.S. agricultural budget, like that of the EC, has shrunk dramatically in the past two years. Significant pressures to cut the overall U.S. budget remain, however, and agriculture continues to be seen as an area in which additional savings can be found. Finally, as the potential for true trade liberalization increases, those whose economic position would be adversely affected will undoubtedly increase their efforts to block an agreement, or at least modify its form.

The likelihood of successfully liberalizing agricultural trade is difficult to assess. The EC has not been willing to discuss substantive changes to the CAP. Similarly, the willingness of the United States to abandon current agricultural programs or of Japan to increase agricultural imports, particularly of rice, has not been tested. Perhaps the best hope for reform is offered by the incentive to reach an agreement in agriculture in order to avoid a breakdown in the other parts of the negotiations.

In addition to the direct budgetary costs, agricultural subsidies also result in a misallocation of resources within the economy. A subsidy for agriculture acts like a tax on other sectors. For example, if a subsidy results in higher returns in agriculture, mobile resources such as capital will be drawn into that sector. In the short term, the supply of capital is fixed, so that if capital devoted to agriculture is increased, the supply to other sectors falls. Reducing the amount of capital available to the losing sector causes the price of capital to increase, an effect that is equivalent to a tax on capital in that sector. A misallocation of resources means that the efficiency of the economy is reduced. Agricultural trade liberalization could reduce or eliminate these indirect costs of farm programs.

Finally, other portions of the GATT negotiations might be held hostage to an agricultural agreement. Several countries, including Argentina, Brazil, Colombia, Chile, and Uruguay, have threatened to withhold approval of other GATT agreements (for example, on intellectual property rights and international trade in services) if an agreement on agricultural trade cannot be reached.[1]

Dependence of U.S. Agriculture on Export Markets

Many of the major crops produced in the United States depend heavily on export markets. As Table 19 indicates, the average percentage of program crop production exported during the 1980s ranges from 27 percent for feed grains to 60 percent for wheat. Further, because domestic demand for most agricultural commodities is growing slowly, export markets offer the best chance for expanding demand for U.S. farm products.

Not only are export markets important to U.S. agriculture, these markets are also very volatile. During the 1980s, the value of U.S. program commodity exports fluctuated dramatically (see Table 20). For all of the commodities except soybeans, the maximum value of exports was more than double the minimum during the period. Even the total value of exports of program commodities varied by nearly 100

1. See Congressional Budget Office, *The GATT Negotiations and U.S. Trade Policy* (June 1987) for a comprehensive discussion of U.S. interests in the GATT.

percent during this period. Such variability is likely to contribute to unstable levels of farm income.

A significant portion of the volatility of U.S. agricultural exports is probably caused by the agricultural policies pursued here and abroad. Table 21 shows that producer subsidy equivalents (PSEs are a measure of the degree of agricultural subsidization) for the European Community (EC), the United States, and Japan have increased through the 1980s. Given the importance of these three markets, their rising level of protection for agriculture disrupts international trade.

The contentiousness of international agricultural trade has increased with the increase in subsidization. Some of the recent disputes involving U.S. agriculture include:

- Import restrictions on rice, beef, citrus, and other food products by Japan;

TABLE 19. EXPORTS AS A PERCENTAGE OF ANNUAL PRODUCTION

Marketing Year	Wheat	Rice	Coarse Grains	Soybeans	Cotton
1980-1981	64	63	36	40	53
1981-1982	64	45	24	47	42
1982-1983	55	45	21	41	43
1983-1984	59	72	41	45	87
1984-1985	54	45	24	32	48
1985-1986	38	44	13	35	15
1986-1987	48	63	18	39	69
1987-1988 (Projected)	76	57	24	42	45
1988-1989 (Projected)	83	47	38	36	34
Average	60	53	27	40	48
Minimum	38	44	13	32	15
Maximum	83	72	41	47	87

SOURCE: Congressional Budget Office using data from Department of Agriculture, *World Grain Situation and Outlook*, various issues, and *World Agricultural Supply and Demand Estimates*, various issues.

- o EC prohibition of imports of beef produced with growth hormones;
- o U.S. and Canadian ice cream quotas;
- o The importation of ethanol produced from sugar (or European wine) by Caribbean Initiative Countries;
- o Maintenance of the zero tariff levels for oilseeds, oilseed meals, and some feed substitutes exported to the EC; and
- o Minimum levels of feed grain imports into the EC to compensate for the markets lost when Portugal and Spain joined the EC.

A total of 14 disputes over subsidies were taken to GATT for arbitration between 1948 and 1985. Eight of these disputes took place

TABLE 20. TOTAL VALUE OF EXPORTS OF U.S. PROGRAM COMMODITIES (In billions of dollars)

Fiscal Year	Wheat	Rice	Feed Grains	Soybeans	Cotton	Total
1980	6.6	1.2	9.2	6.2	3.0	26.2
1981	8.1	1.5	10.5	6.0	2.2	28.3
1982	7.7	1.1	7.1	8.4	2.1	26.4
1983	6.2	0.9	6.6	7.8	1.7	23.1
1984	6.8	0.9	8.2	7.5	2.4	25.8
1985	4.5	0.7	6.9	5.3	1.9	19.3
1986	3.5	0.6	3.8	5.6	0.7	14.3
1987	3.1	0.5	3.8	5.7	1.4	14.6
1988	4.7	0.7	5.2	6.9	2.1	19.7
Average	5.7	0.9	6.8	6.6	2.0	22.0
Minimum	3.1	0.6	3.8	5.3	0.7	14.3
Maximum	8.1	1.5	10.5	8.4	3.0	28.3

SOURCE: Congressional Budget Office using data from Department of Agriculture, *Foreign Agricultural Trade of the United States*, various issues.

TABLE 21. PRODUCER SUBSIDY EQUIVALENTS FOR SELECTED COMMODITIES IN THE EUROPEAN COMMUNITY, JAPAN, AND THE UNITED STATES, 1982-1986

Commodity	1982	1983	1984	1985	1986
			European Community[a]		
Barley	3.5	21.7	1.6	9.7	39.2
Beef/Veal	38.0	42.5	49.4	55.6	36.5
Corn	19.6	0.2	5.9	36.2	62.1
Dairy[b]	34.2	34.0	40.3	43.8	65.5
Pork	11.7	15.2	7.7	13.7	27.1
Poultry	21.6	32.5	25.6	29.5	33.6
Rapeseed	49.7	36.7	16.6	52.5	67.5
Rice	29.5	23.4	43.3	58.6	73.3
Soybeans	50.8	13.7	42.7	66.4	43.4
Sugar	43.2	24.3	56.0	52.3	49.2
Wheat[c]	27.6	11.4	6.4	32.5	58.1
All Commodities[d]	29.0	29.5	30.4	38.3	49.8
			Japan		
Barley	96.9	93.7	91.9	98.4	103.7
Beef	54.8	54.6	55.7	59.2	70.9
Dairy[e]	82.0	88.9	93.6	95.0	105.9
Pork	40.7	54.3	51.3	40.1	51.3
Poultry	24.9	23.7	23.0	21.1	20.3
Rice	84.8	87.8	87.3	86.7	94.3
Soybeans	72.7	76.9	65.2	74.4	65.9
Sugar[f]	63.7	70.8	72.4	72.1	73.8
Wheat	95.8	97.2	96.8	96.0	103.1
All Commodities[d]	66.6	71.2	71.9	70.1	78.6
			United States		
Barley	13.2	14.2	13.7	27.4	76.4
Beef/Veal	7.2	7.6	7.8	9.6	11.7
Corn	12.9	40.8	15.5	19.7	49.5
Dairy	48.4	44.9	63.4	54.8	58.9
Oats	5.2	7.1	5.8	8.0	15.9
Pork	4.7	5.1	5.3	6.3	7.9
Poultry	5.0	5.1	5.3	6.5	17.1
Rice	23.8	46.4	31.9	52.2	71.7
Sorghum	18.1	52.9	19.5	22.5	49.2
Soybeans	7.7	6.9	6.6	9.6	13.3
Sugar	70.4	71.3	86.8	75.3	82.7
Wheat	16.8	38.1	28.5	37.9	63.0
All Commodities[d]	17.3	25.6	21.6	23.9	35.8

SOURCE: Congressional Budget Office using data from Department of Agriculture, *Estimates of Producer and Consumer Subsidy Equivalents: Government Intervention in Agriculture, 1982-1986*, ERS Staff Report No. AGES880127 (April 1988).

a. The European Community includes the United Kingdom, Ireland, the Netherlands, Belgium, Luxembourg, Denmark, Germany, France, Italy, and Spain. Data for Spain and Portugal are not included.

b. Producer subsidy equivalent (PSE) is for fluid milk.

c. PSE is the weighted average for durum and soft wheat.

d. Figures represent weighted average of all commodities for which a PSE has been calculated, possibly including some commodities not listed.

e. PSE is the weighted average of fluid and manufacturing milk.

f. PSE is the weighted average of beet and cane sugar.

between 1975 and 1985, all of them involving agriculture. Thus, objective measures suggest that agricultural protectionism has been increasing, the trading atmosphere has become more tense, and agricultural trade bears a major portion of the responsibility for the deterioration of the trading environment.

Multilateral Versus Unilateral Trade Liberalization

The United States has been moving unilaterally toward a more market-oriented farm policy, at least with respect to the major grain crops and cotton. In particular, the 1985 Food Security Act (FSA) contains features that increase the influence of the market over farmers' production decisions: target prices and loan rates have fallen, the program yield has been frozen, it is much more difficult to increase the number of acres eligible for the programs, and, more recently, the definition of who is eligible for payments has been tightened.[2]

The CBO baseline discussed earlier in this report assumes that current farm policy is extended (with declining target prices through 1994), causing this trend toward greater market orientation to continue. In this scenario, relatively small differences between target prices and market prices for many program commodities remain by the end of the five-year projection period. Thus, by 1994 the degree of subsidization of U.S. agriculture provided by deficiency payments is quite small in the baseline projection. To the extent that the Uruguay Round can persuade other countries to liberalize their own agricultural sectors, the adjustment costs for U.S. agriculture of moving to a greater market orientation would be reduced.

2. The situation with respect to sugar and, to a lesser extent, dairy products is somewhat different. The price support level for sugar is not projected to decline, and the quotas used to enforce the support price are projected to remain in place. For dairy products, the import quotas on cheese are not expected to be changed but the support price is projected to fall. Thus, the baseline includes no policy-induced changes in the protection of sugar and few for dairy products.

IMPLICATIONS OF THE URUGUAY ROUND FOR U.S. FARM POLICY AND THE BUDGET

The impact of an agricultural agreement in the Uruguay Round on U.S. farm policy and the budget depends on at least three key factors: the baseline against which liberalization is compared, the final form of the reform, and the nature of policies pursued during the transition period. An understanding of these factors is necessary to focus the discussion of trade liberalization and to interpret the results of existing models of GATT reforms.

Baseline Considerations

The size and even the direction of changes in farm production, prices, income, and government costs that are predicted to result from trade liberalization depend to a large extent on the assumptions used in constructing a baseline. Two sets of assumptions that are very important in this context relate to world market conditions and the future direction of agricultural policy.

World Market Conditions. One set of market variables that are of crucial concern are macroeconomic factors such as the rate of inflation, the exchange rate for the dollar, and economic growth rates at home and abroad. These factors affect the relative competitiveness of U.S. agricultural products and the ability of other countries to purchase these products.

A second set of assumptions of great importance relate to agricultural production, especially how yields are affected by technological change. For example, a number of advances in biotechnology are said to be nearly ready for commercial application. Their impact on commodity program costs could be significant.

Agricultural Policy Factors. The future direction of agricultural policy could have a significant impact on yield trends and is also a crucial assumption in assembling a baseline. The current CBO Commodity Credit Corporation (CCC) baseline assumes that target prices will continue to decline in the future at rates observed at the end of the 1985 FSA. If world market prices do not decline along with target

prices, U.S. farm policy would move to a greater market orientation or, equivalently, to lower levels of protection. Again, sugar and dairy policies are exceptions to this characterization. With a greater market orientation, any additional adjustment costs for American agriculture to move to a more liberal trading environment could be relatively small. Another implication of the greater market orientation implied by the CBO baseline is that multilateral liberalization could be virtually a pure gain for U.S. agriculture in that the economic adjustments associated with trade reform would be spread over farmers in more countries.

On the other hand, alternative policy assumptions, such as freezing target prices through 1994 at the 1990 level would mean that the level of protection of U.S. agriculture would be higher relative to the CBO baseline, as would the budgetary costs. Freezing target prices would also mean that most of the adjustment costs for U.S. agriculture would be delayed until the trade reform process began and that these costs would be relatively greater when they do occur.

Potential Forms of Liberalization

Agricultural trade liberalization can take many forms. To illustrate the range of possibilities, two types of complete liberalization, in which all production-distorting policies are eliminated, and two partial liberalization options are reviewed here. Both of the partial liberalization options could also be mechanisms for making the transition from the current situation to complete liberalization.

The analysis indicates that unless the form of an agreement is known, no a priori assessment of the budgetary impact of trade liberalization can be made. What is clear, however, is that trade reform could significantly alter the form, nature, and cost of agricultural policy in the United States.

Complete Liberalization Without Compensation. The U.S. proposal in the Uruguay Round calls on all countries to eliminate all supports for agriculture. The literal interpretation of the proposal means that loan rates, deficiency payments, subsidized credit, research, extension and other farm programs would be eliminated. In practice, the U.S. pro-

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posal has come to be interpreted as calling for the elimination of all "trade-distorting" policies. Under such an interpretation, policies that have only a tangential effect on trade, such as those related to research and the extension service, would not be included in the list of programs to be abolished. Acceptance of the U.S. position would result in budgetary savings equal to the trade-distorting subsidies in such programs as the Commodity Credit Corporation, Federal Crop Insurance Corporation, Farmers Home Administration farmer loan programs, the Farm Credit System, and most other programs in budget function 351. The ultimate impact on the budget would depend on whether these programs were replaced by other policies that are deemed not to distort trade.

Economic theory and empirical models indicate that eliminating these programs should produce secondary benefits in the form of increased efficiencies resulting from improved distribution and use of resources. Liberalization would, however, entail significant short-term, transitional costs for agriculture. For example, owners of farmland could expect to experience capital losses, and many who are currently farming would be expected to leave the sector. In addition, U.S. market prices for some commodities (grains) would be expected to increase and those of others (milk, sugar) to decrease. The ultimate impact of these price changes on consumers is uncertain.

Liberalization with Full Compensation. Even the most sweeping proposal for trade liberalization would allow a country to support its farmers if the support did not distort production. For example, farmers might be given direct payments that are unrelated to current production. Such payments, often called decoupled payments, could be seen as equivalent to trade adjustment assistance that workers in other industries can currently receive if they are materially injured by international trade.

Current farm policy incorporates aspects of decoupling, but significant changes in programs would be required to make them more production-neutral in accordance with a GATT agreement. Shifting to a decoupled program would require eliminating current commodity programs, export programs, and input subsidies. It is not clear if programs such as the Conservation Reserve Program, which have a clear impact on production decisions in addition to their conservation consequences, would have to be eliminated.

A number of direct transfer programs for farmers have been discussed in the United States. Three general types of decoupled programs can be identified: transition, transfer, and insurance programs. A transition program might, for example, provide farmers currently in commodity programs with a declining percentage of existing or projected benefits. After the transition period, no additional support would be offered. A transfer program would provide benefits over an indeterminate period to targeted groups within the farm sector. For example, payments might be made to farmers on the basis of need as determined by income. Finally, insurance programs, which could combine aspects of both transition and transfer programs, would provide episodic, countercyclical benefits to the farm sector (meaning that farmers would receive net transfers when their incomes are low and would pay into the program when incomes are high). A revenue insurance program, in which farmers pay an insurance premium (which may or may not be subsidized) in order to receive benefits when farm revenues fall below some trigger level, is one form of a decoupled insurance program.

Existing studies of decoupled programs have focused on transition programs and have generally concluded that if full compensation is offered, they would increase the agricultural budget relative to baseline levels.[3] Under current programs, some of the support for farmers is provided by taxpayers (through transfer payments) and some by consumers (through domestic commodity prices above world prices). If all of the support is provided via government transfers, and if full compensation is offered (meaning no change in the financial well-being of the sector), the agricultural budget would be expected to increase.[4]

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3. See, for example, Chase Econometrics, *An Economic Analysis of Alternative Agricultural Policies* (Bala Cynwyd, Penn.: Wharton Econometrics, Inc., April 1987) or Congressional Budget Office, "Cost Estimate for S. 1725, The Family Farm Protection Act," December 1988.

4. Thomas W. Hertel, Robert L. Thompson, and Marinos E. Tsigas, in "Economy-Wide Effects of Unilateral Trade and Policy Liberalization in U.S. Agriculture" (Centre for International Economics, Canberra, Australia, May 1988), come to a different conclusion. They calculate the capitalized value of losses experienced by landowners as a result of trade liberalization to be $114 billion, and the capitalized value of lower deficits (from both lower expenditures and higher tax receipts) to be $276.8 billion. Without examining the mechanisms used for the transfers, the authors conclude that full compensation could be offered and still leave the economy better off. However, because the transfer mechanism is not defined, the implicit assumption is that those adversely affected by trade could be identified, their losses accurately calculated and the transfer completed efficiently. In practice, none of these conditions is likely to hold, so it is not clear that complete compensation could be offered and still result in reduced governmental expenditures.

"Tariffication" of Import Restraints and Elimination of Export Subsidies. One means of moving toward trade liberalization without completely eliminating current programs would start by replacing all agricultural import quotas and nontariff trade barriers with bound tariffs ("tariffication") and restricting export subsidies.[5]

Under this procedure, tariffs could be bound at levels that provide the same degree of import protection to farmers as existing quotas. In the United States, quotas for sugar, dairy products, and peanuts would have to be converted to tariffs as would the voluntary export restraint agreement on fresh and frozen meat. Over time, tariff levels would be gradually reduced. For countries that continue to subsidize agriculture and are high-cost producers, tariff reduction would mean that ever-tighter supply controls would have to be enacted to avoid stock buildups while complying with the no-export-subsidy requirement. In late 1988, the U.S. incorporated tariffication into its GATT proposal.

Restrictions on export subsidies, which would increase over time, would limit a country's ability to dump excess production onto the world market. In addition, without export subsidies, countries subsidizing production would have to limit output to levels that could be sold at world market prices in order to avoid stock buildups. Output could be reduced either by ever-more restrictive measures to control supply or by reductions in the subsidies that encourage production.

Export subsidies can be direct or indirect. In the United States, direct export subsidies would include the Export Enhancement Program, subsidized export credit programs and possibly Title I of the P.L. 480, Food for Peace program. Indirect export subsidies would include below-cost provision of agricultural inputs such as Bureau of Reclamation irrigation water and Farmers Home Administration credit. Reducing direct and indirect export subsidies would shift part of the cost of farm programs from taxpayers to consumers.

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5. See, for example, Joachim Zietz and Alberto Valdes, *Agriculture in the GATT: An Analysis of Alternative Approaches to Reform* (Washington, D.C.: International Food Policy Research Institute Research Report 70, November 1988). A "bound" tariff is one that has been fixed and can only be increased in special circumstances and for limited periods of time. Failure to return to the bound tariff level within the agreed-upon time constitutes grounds for affected countries to seek compensation or to take retaliatory actions.

This alternative would probably reduce the agricultural budget. Spending would fall because export subsidy programs (direct and indirect) would be reduced, supply control measures might have to be increased for some crops (meaning a fall in deficiency payments), and the tariffs used in place of quotas would generate some receipts.

Reduction of Protection Using the Producer Subsidy Equivalent. The producer subsidy equivalent, or PSE, measures agricultural protection in terms of income transfers from the taxpayers and consumers to farmers.[6] The PSE permits the comparison of protection offered by countries pursuing very different policies. Trade liberalization could proceed if each country agreed to cut by some percentage its aggregate PSE. Countries would then, presumably, be permitted to choose the policy changes needed to attain the new PSE level.

For example, suppose that countries agreed to reduce their aggregate PSEs by 20 percent from the preceding year for five years beginning in 1990, using 1986 as a base. Table 21 shows that the aggregate PSE for the United States in 1986 was 35.8. Under this liberalization scenario, the United States would have to reduce its aggregate PSE to no more than 28.6 in 1990, 22.9 in 1991, 18.3 in 1992, 14.7 in 1993, and 11.7 in 1994. The United States could choose to attain these lower PSE levels by cutting its agricultural support programs or making part of the support in decoupled payments. Trade liberalization would probably result in lower agricultural spending and would certainly change the agricultural policies themselves. The magnitude of these changes is impossible to determine without knowing the strategy that would be followed to meet the required PSE levels.[7]

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6. The PSE is one means of measuring aggregate levels of government intervention in agriculture. For a discussion of the different measures and their strengths and weaknesses, see Nancy Schwartz and Stephen Parker, "Measuring Government Intervention in Agriculture for the GATT Negotiations," *American Journal of Agricultural Economics*, vol. 70, 5 (December 1988).

7. The Production Entitlement Guarantee (PEG) is a recent trade liberalization proposal combining aspects of decoupling and the PSE. Under PEG, individual farmers would receive support payments on a fixed quantity of production that is less than would be produced under free trade conditions. The aggregate quantity of PEGs in a country would be fixed and could be set so that the new PSE would be less than or equal to the PSE during a base period. All border measures would be eliminated as would all internal supports other than PEG. PEGs could be tradeable so that high-cost producers are not encouraged to stay in agriculture. For a more extensive discussion of the PEG, see David Blandford, Harry de Gorter, Bruce Gardner, and David Harvey, "There is a Way to Support Farm Income with Minimal Trade Distortions," *Choices*, First Quarter, 1988.

The use of PSEs as a negotiating tool has a number of disadvantages. First, its policy coverage is not complete. For example, under current procedures acreage set-aside requirements do not directly figure in the calculation despite the fact that they represent a direct offset to some of the benefits received by farmers in the commodity programs. Second, PSEs include programs that have little or no trade-distorting effects, such as research and development and meat inspection services. Third, use of the PSE would maintain agriculture's special treatment in the GATT in that it would continue to allow agriculture to use policies such as quotas and export subsidies not allowed in other sectors, and would introduce a new measure of protection specific to agriculture. Fourth, the PSE concept involves a number of operational difficulties, such as defining the method of calculating it and agreeing on its base year.

Transition Policies

The Uruguay Round is not scheduled to be completed until 1990; accepting and implementing its agreements would take additional time. The period covered by the current CBO baseline, therefore, would probably, at most, be part of a transition period. The transition period is crucial to any agreement because it is likely to specify the levels of subsidization that would be allowed under the agreement and may define the types of programs that can or cannot be pursued.

The negotiating parties have failed to agree on the type of reform that will be sought, so the nature of the transition period has not received a great deal of attention. One fairly specific proposal was submitted by the Cairns Group before the midterm review in Montreal. CBO has examined the Cairns proposal with respect to the types of program changes that it might require and how it might affect the federal budget.[8]

Description of the Cairns Proposal. The Cairns proposal calls for an immediate freeze on agricultural production and export subsidies and

8. For additional detail concerning the effect of the Cairns Group proposal, see "Budgetary Effects of the Cairns GATT Proposal," CBO Staff Memorandum, November 1988.

10 percent reductions in the aggregate level of support for agriculture in both 1989 and 1990. The proposal does not specify the short-term policy changes that would be required of each country, but Australian delegates have provided an "illustrative" example of the types of policy changes that would conform to the Cairns proposal. Required policy changes in the Australian example include:

- Export Subsidies. Export subsidy payments would have to be reduced by at least 10 percent in both 1989 and 1990.

- Market Access. Countries would have to ease quantitative import restrictions, or other measures such as the European Community's variable levies that restrict imports, in order to provide minimum access of 3 percent of domestic consumption. If current imports exceed this level, any restrictions on market access would have to be relaxed by 10 percent in both 1989 and 1990.

- Administered Prices. Policy-affected prices, including target prices and nonrecourse loan rates in the United States, would have to be reduced by a minimum of 3 percent in both 1989 and 1990. This would not apply to crops receiving relatively small levels of aggregate government support.

- Supply and Acreage Controls. Existing supply control programs could not be relaxed during 1989 and 1990 from current levels.

- Stock Disposal and Accumulation. Disciplines would be imposed to discourage additional government stock accumulation and to encourage orderly reductions of current stocks.

The Australian example does not fully specify needed program and policy changes. For the purpose of this analysis, therefore, CBO assumed that 1987 would be used as the base year for determining required reductions in target prices, loan rates, and the milk price support level. Further, CBO assumed that minimum changes specified in the Australian illustration had to be made in each year--cumulative changes over the period would not suffice. Finally, it was assumed that

the United States would not be required to revert to the relatively high levels of Acreage Reduction Programs in place during 1987 and 1988.

Implications for U.S. Farm Programs. Changes to U.S. farm programs and trade policies that would be required by the Cairns proposal include:

- The target price for wheat in 1990 would fall from $4.00 per bushel to $3.98 per bushel.
- The 1990 target price for rice would fall from $10.71 per hundredweight (cwt) under current law to $10.48 per cwt.
- The 1990 loan rate for rice would fall from $6.50 per cwt to $6.30 per cwt if the rice loan rate is considered an administered price.
- The sugar loan rate, set by current law at $0.18 per pound through 1990, would have to fall to $0.175 per pound in 1989 and $0.169 per pound in 1990.
- The projected 1990 sugar quota would be increased by an estimated 100 thousand tons.
- The dairy quota would be relaxed by the equivalent of about 1.8 billion pounds of milk for 1990.
- The import restrictions on meat would be increased to 1,584 million pounds in 1989 and 1,742 million pounds in 1990.

Implications for CCC Outlays. In general, CBO expects that U.S. producers of commodities that are exported--wheat, feed grains, and rice--would benefit marginally from the Cairns proposal because changes in other countries' policies would increase the demand for U.S. crops. U.S. producers of commodities facing import competition--dairy and sugar--would experience marginally lower incomes because relaxing import quotas would pressure domestic prices.

Adopting these short-term measures would cause CCC spending to drop for programs supporting crops that are exported. Reductions would result more from improved market prices, and hence lower

deficiency payments, than from lower target prices. CCC spending for programs supporting sugar and dairy products would rise because of increases in import quotas. Relative to the conditions pertaining at the time of the analysis, the Cairns proposal would have reduced CCC outlays by an estimated $240 million in 1989, $300 million in 1990, and $485 million in 1991.

IMPLICATIONS OF FULL LIBERALIZATION FOR THE AGRICULTURAL SECTOR: RESULTS OF RECENT STUDIES

As discussed above, full liberalization is but one of many possible outcomes of the Uruguay Round. Many would argue that it is not the most likely outcome and that it may in fact be the least likely. However, full liberalization represents a polar case in agricultural trade reform and has been the subject of numerous recent studies. These trade liberalization studies use different baseline assumptions about future market and policy conditions, use different modeling approaches, and focus on different time periods. Despite these dissimilarities, some general conclusions can be drawn from the studies that support a priori expectations.

Some A Priori Expectations

Protection levels, economic adjustments that will have to be made by the farm sector, and the budgetary savings expected from trade liberalization are interconnected. In general, a relatively high level of protection implies a greater divergence between domestic and world market prices. The larger the divergence between domestic and world prices, the larger the expected adjustment costs.[9] Further, given the nature of U.S. agricultural policies and assuming that alternative policies are not put in place, the higher the relative level of protection, the greater the expected budgetary savings associated with liberali-

9. If levels of protection are high in many large markets, multilateral trade reform might increase world market prices substantially. These increases would offset, to some extent, the loss of protection. In such a case, the relative levels of protection are an even more important factor in determining the magnitude of adjustment costs borne by a given country.

zation. These expectations are based on the belief that the greater the relative subsidy, the greater the economic distortion that would be remedied by trade liberalization.

Budgetary Savings from Trade Liberalization. Under CBO baseline assumptions, U.S. agricultural protection levels are quite low by 1994 for most commodities. As a result, the additional economic adjustments that are likely to be required of U.S. agriculture would be small, as would the budgetary savings. Because most of the subsidies currently enjoyed by agriculture would be removed during the 1990-1994 period under the CBO baseline, most of the adjustment costs would be absorbed during this period.

Differential Impact of Trade Liberalization Across Crops. A corollary to the preceding discussion is that the adjustments required of producers of different crops will also depend on the level of protection relative to other countries and alternative types of production. Thus, sugar, rice, or dairy producers would be expected to face greater adjustment costs if trade were liberalized than would producers of livestock, soybeans, or grains.

Trade Liberalization and Farm Welfare. Government programs result in farm incomes that are higher than they would be in the absence of these policies. Thus, their removal would be expected to reduce farm income. Land values are closely tied to the income that is generated by that land. If farm income is expected to fall, so too should land values. Lower farm income could also be expected to reduce the number of people engaged in farming. Significant costs, both monetary and personal, would be borne by those leaving the sector. In addition, rural economies in areas with declining farm populations and reduced economic activity would be harmed.

Multilateral Versus Unilateral Liberalization. The CBO baseline does not assume significant changes in the policies of other countries. In contrast, protection levels for most U.S. program commodities are falling in the CBO baseline, implying that most of the costs of adjusting to freer agricultural trade would be borne by the United States. If agricultural policy reform were multilateral, the adjustment costs for U.S. agriculture would be reduced because farmers in other protected markets would be adjusting their production.

Conclusions of the Econometric Studies

Economic studies of the effects of trade liberalization fall into two general categories.[10] One group uses general equilibrium models to examine the economywide impacts of trade liberalization. Because of the complexity of general equilibrium models, these studies generally examine the impacts of unilateral agricultural reform. That is, they ask what would happen to the economy if the United States were to unilaterally phase out its agricultural programs while other countries continued to pursue existing policies.

A second group of studies focuses on agricultural markets and multilateral agricultural reform. This set of analyses, which use partial equilibrium models, does capture the benefits to the agricultural sector of cooperative efforts to dismantle trade barriers but does not examine the benefits of trade liberalization in other sectors of the economy.

Regardless of the type of model used to examine trade reform, the results depend significantly on the baseline against which comparisons are made. For example, if the baseline projects high levels of agricultural surpluses, low prices, and high government spending, trade liberalization is likely to have a large impact. Many of the models were estimated when these conditions prevailed and some were done before the 1985 FSA was enacted. As a result, interpreting the results of the models in terms of current economic conditions is difficult (see Box 5). In the following discussion, unless otherwise stated, the results are generally supported by both types of models.

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10. See, for example, Kym Anderson and Rodney Tyers, "Global Effects of Liberalizing Trade in Agriculture" (to be published as a Thames Essay, Trade Policy Research Centre, London); Andrew Feltenstein, "Agricultural Policies and the U.S. Federal Budget and the Trade Deficit" (Centre for International Economics, Canberra, Australia, May 1988); Thomas W. Hertel and others, "Economy-Wide Effects of Unilateral Trade and Policy Liberalization in U.S. Agriculture"; K.S. Parikh, G. Fischer, K. Frohberg, and O. Gulbrandsen, "Toward Free Trade in Agriculture" (International Institute for Applied Systems Analysis, Laxenburg, Austria, 1986); Sherman Robinson, Irma Adelman, and Maureen Kilkenny, "The Effect of Trade Liberalization in Agriculture on the U.S. Economy: Projections to 1991" (Centre for International Economics, Canberra, Australia, May 1988); and Rodney Tyers and Kym Anderson, "Distortions in World Food Markets: A Quantitative Assessment," Background paper for *World Development Report, 1986* (Washington, D.C.: World Bank, 1986). Useful summaries of this literature are provided in David Blandford, "The Impact of Freer Agricultural Trade: A Review of the Empirical Evidence," Background paper prepared for the Symposium "Bringing Agriculture into the GATT" (International Agricultural Trade Research Consortium, Annapolis, Maryland, August 1988); and Bruce Gardner, "Recent Studies of Agricultural Trade Liberalization" (paper presented at the International Association of Agricultural Economists, Buenos Aires, Argentina, August 1988).

BOX 5

THE SHORTCOMINGS OF ECONOMETRIC MODELS OF TRADE REFORM

Most trade liberalization studies use either general equilibrium or partial equilibrium models. General equilibrium models link the many sectors of an economy and link that economy with the world market. The advantages of a general equilibrium model include the ability to examine the broader economic implications of agricultural trade liberalization and greater theoretical rigor. Partial equilibrium models are less capable of measuring the broader economic impacts of trade liberalization but allow a more detailed analysis of the impacts within the agricultural sector.

Existing studies also differ with respect to the time at which liberalization is assumed to begin, the length of time during which reform is to be completed, the period in which the models were estimated, and the assumptions regarding existing agricultural policies. Thus, comparison of results across models must be done with great care.

Given the current state of econometric modeling capabilities and the extreme complexity of trade liberalization, it is not surprising that econometric models of this process have a number of shortcomings. Most models, for example, attempt to predict the outcome of the free agricultural trade scenario (the counterfactual case), making it difficult to evaluate their merit.

In addition, the relationships estimated in the models are significantly influenced by existing institutions and policies. Trade liberalization would significantly alter these institutions and policies, undermining our confidence in the continuing validity of the models.

Finally, most of the models were estimated before the implementation of the 1985 Food Security Act (FSA) and the 1988 drought. Thus, the data used in the estimations are dated (though many of the models incorporate the policies in the FSA).

General equilibrium models have the advantage of satisfying a number of concepts that economic theory contends ought to be true. However, economists' ability to define the theoretical behavior of firms has outstripped their ability to quantify those relationships. As a result, the values for many important model parameters used in general equilibrium models tend to be assumed or based on limited econometric analysis. Further, in order to facilitate computations, general equilibrium models are forced to make a number of simplifications. Examples of such simplifications would be the aggregation of countries into regions and the assumption that all additions to income resulting from trade liberalization are used to increase consumption.

Partial equilibrium models also have weaknesses. While there are fewer instances in which modelers are forced to assume explicit values for key variables, implicit assumptions are made. For example, because the models focus on the agriculture sector, the links between this sector and other sectors of the economy are not explicitly modeled. Implicitly, however, these models assume that changes in agriculture have limited or no impact on other sectors. In addition, partial equilibrium models cannot tell us anything about the effects of trade liberalization on the income of owners of factors of production. For example, with trade liberalization we may know that returns to owners of farm land and to farm laborers fall. However, because the partial equilibrium models cannot indicate the alternative uses for these factors, we cannot confidently say how trade liberalization affects the relative well-being of these two groups.

Budgetary Savings from Trade Liberalization. Models of full trade liberalization assume that no policies replace existing ones. As a result, these studies project substantial budgetary savings. Indeed, for most models these same budgetary savings fuel the increased rates of GNP growth that most analysts predict.

Differential Impact of Trade Liberalization Across Crops. Most studies of trade reform expect world prices and the quantities of agricultural products traded to increase. The higher world prices, nonetheless, are expected to be lower than U.S. target prices, resulting in a decline in the U.S. production of some crops. Two exceptions to the expected decline in output are beef and feed grains; oilseeds were not considered by these models.

In general, the models show that trade reform should have a greater impact on world prices and quantities traded in the dairy, livestock, and sugar markets than in markets for food and feed grains. The beef, dairy, and sugar markets have long had high levels of protection in a large number of countries. Most of the projected price increase for beef would result from liberalizing the Japanese and European markets. Liberalization of the U.S. market in addition to those of Japan and the EC would be a major factor in increasing international dairy and sugar prices.

Within the grains sector, virtually all of the models conclude that expected market price increases for feed grains are less than for wheat, which are less than expected price changes in rice. The larger increase in the wheat price reflects the higher levels of protection for wheat than for feed grains at the time the models were estimated, and the larger proportion of wheat production traded in international markets. The rice price increases because opening the Japanese and European rice markets more than offsets supply increases associated with eliminating supply controls in the United States.

Trade Liberalization and Farm Welfare. Most models conclude that owners of farmland would experience substantial financial losses as the result of liberalizing agricultural trade. This conclusion is based on the belief that most of the value of existing agricultural subsidies is incorporated into land values. Consistent with the lower land values, the models expect declines in farm income.

In addition, the models suggest substantial variation in land price effects within the sector. For example, rents for feed grains, dairy and grazing acreage are expected to fall by less than the average, while rents for sugar, cotton and food grains acreage fall by considerably more than the average.[11] Though not included in the models, differences in land quality, land with commodity program base versus land without program base, and geographic differences are likely to cause additional variation in the effect of liberalization on land values.

Some of the models look at farm employment, though none tries to predict how farm numbers or the structure of agriculture might be affected by agricultural trade liberalization. These models assume that labor can make the transition from agriculture to other sectors of the economy. In both the short and long term, use of farm labor is predicted to fall by these models.

The models suggest that reducing labor in agriculture benefits the economy because government spending and the costs of other sectors of the economy decline. However, such transitions entail very real economic and personal costs for the people involved. To a large extent the ultimate impact of liberalization on farm numbers may depend on general economic activity and the degree to which rural employment opportunities exist. For example, if off-farm employment is an option, the decline in the amount of labor devoted to agriculture predicted by these models might be no more than a continuation or slight acceleration of the trend toward part-time farming. The transition costs of moving from full- to part-time farming would be expected to be less than a move completely out of the sector. Finally, the exodus from farming would continue a long-term trend toward fewer farms in this and other developed economies. While the loss of protection from foreign competition may result in a short-term increase in the rate of the farm population decline, some studies show that the rate of out-migration from agriculture is unrelated to the degree of protection.[12]

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11. See, Appendix C in Hertel and others, "Economy-Wide Effects of Unilateral Trade and Policy Liberalization in U.S. Agriculture."

12. See, for example, D. Gale Johnson, Kenzo Hemmi, and Pierre Lardinois, *Agricultural Policy and Trade* (New York: New York University Press, 1985). The authors found no relationship between the prices received by farmers (a measure of their protection) and the rate of out-migration for a

Multilateral Versus Unilateral Liberalization. The models are consistent in showing that the U.S. agricultural sector would be much better off under multilateral reform than under unilateral reform. The models suggest that, relative to multilateral reform, unilateral liberalization would result in lower commodity prices for essentially all commodities, lower levels of agricultural production in the United States, and a larger U.S. trade deficit. Most of the models predict that the value of U.S. agricultural exports would increase and the trade balance improve if multilateral trade reform is achieved. Most of the net improvement in agricultural exports is attributable to the grains subsector, though some models also expect improved meat exports. Dairy and sugar imports are expected to increase dramatically.

CONCLUSION

Because agriculture is a net recipient of support, removal of the support will probably affect the sector adversely in the short term. Soil fertility, a relatively moderate climate, well-developed distribution and communications systems, and strong research and development capabilities are believed to give the United States a comparative advantage in the production of many crops. The long-term well-being of the farming sector could, therefore, probably be enhanced by freer agricultural trade, since the most efficient operators would be expected to control more productive resources. For those requiring assistance during the transition to freer markets, governmental programs could be developed. It is true, however, that the sector would probably be smaller, slightly more concentrated, and less wealthy after trade liberalization.

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12. (continued)

number of developed economies. This result conforms to theoretical expectations if mobility exists in the labor market and if the benefits from protection are capitalized into fixed factors of production. Mobility in labor markets implies that opportunities in the broader economy have a major influence on farm numbers (a booming economy with many job opportunities will draw farm families off the land). Capitalizing the benefits of protection into fixed factors (principally land) implies that only the owners of fixed factors at the time that the protection is put in place receive any benefits. Thus, as the fixed factors are bid up in price (in response to the protection), returns to other factors, including labor, fall back to their opportunity cost (which is defined in terms of employment in other sectors of the economy).

Trade reform is also expected to have macroeconomic benefits. The econometric models predict that GNP growth would be stimulated as resources are used more efficiently. The aggregate trade position of the United States would also be expected to improve. In addition, agreement on other GATT topics that are of great interest to the United States, such as intellectual property rights, may depend upon reaching an accord in the area of agriculture.

Though the outcome of the talks will probably fall short of the U.S. Administration's goal of eliminating all subsidies that distort production, many observers feel that significant progress toward freer agricultural trade is possible. Even negotiating changes in domestic agricultural policies in an international forum would have been unthinkable not long ago. Any agreement to reduce impediments to the free flow of farm commodities could be considered a major step forward.

The changes that might be required in U.S. farm policy could be very significant. However, any agreement to liberalize agricultural trade would be phased in over several years. Political realities and the transition costs of abrupt policy changes make rapid implementation of an agreement unlikely. Policy changes that could occur during the five-year period covered by the CBO baseline might not be dramatic even if the current U.S. position were the outcome.

Finally, the budgetary pressures facing the U.S. over the coming years will be intense. A GATT agreement to reform agricultural trade could significantly facilitate reductions in agricultural spending.

APPENDIX

WORLD TRADE ASSUMPTIONS FOR SUPPORTED FARM COMMODITIES

Tables A-1 through A-8 provide details of assumptions underlying the export projections for corn, coarse grains, wheat, rice, cotton, soybeans, soybean meal, and soybean oil. The global trade tables for these commodities give projections for major competitors and major markets through 1994.

Both the global level and the U.S. share of commodity trade are expected to improve in the 1988-1994 period compared with the early and mid-1980s. Projected annual growth rates for total world trade are about 2.7 percent for wheat, about 4 percent for corn, 3 percent for rice and cotton, and 2 percent to 3 percent for the soybean complex. Trade levels generally fell between 1980 and 1985, but lower prices, a weak dollar exchange rate, and assumed moderate economic growth combined with a manageable debt-financing scenario should stimulate continued gains in global trade. Actual levels of total trade for these commodities will, of course, depend on the prices of these commodities and of their substitutes, on production decisions, and on the weather in producing countries. Since trade in commodities is heavily influenced by production and trade policies in various countries, any bilateral or multilateral trade agreements will influence trade levels in future years. No major changes are incorporated in these forecasts. The Free Trade Agreement between the U.S. and Canada may increase grain trade slightly between the two countries. A continuation of the modest reduction of domestic production subsidies in the European Community is assumed.

For wheat and corn, the U.S. share of world trade in the early 1990s is expected to exceed the 1980-1985 average. Export sales have risen sharply in 1988, with corn and wheat exports forecast at the fifth highest level ever. These high trade shares are not expected to be maintained in this baseline projection. However, with a large reservoir of land taken out of production, mostly in the long-term Conservation Reserve Program, the United States would be able to respond to a surge in demand and raise its share of global trade. The

U.S. export share of rice and cotton over the next five years, in contrast, is not expected to exceed the average of the first half of the 1980s; for the soybean complex, the share may be about the same.

TABLE A-1. WORLD CORN TRADE ASSUMPTIONS IN THE CBO BASELINE (By trade year, in millions of metric tons)

	Actual 1987	Projected 1988	1989	1990	1991	1992	1993	1994
Exports								
United States	44.5	49.1	48.1	49.7	51.6	53.4	55.2	57.3
Major Competitors								
Argentina	3.6	3.9	4.6	4.7	5.2	5.3	5.5	6.0
China	4.3	4.0	3.7	3.3	3.3	3.3	3.3	3.3
South Africa	0.6	1.6	1.8	1.9	1.9	1.9	1.9	1.9
Thailand	0.8	2.7	3.0	3.2	3.4	3.6	3.8	4.0
Subtotal	9.3	12.2	13.1	13.1	13.8	14.1	14.5	15.2
Rest of World	3.1	3.5	4.0	3.5	3.5	3.5	3.5	3.5
Total	56.9	64.8	65.1	66.3	68.9	71.0	73.1	76.0
U.S. Share (In percent)	78	76	74	75	75	75	75	75
Imports								
Major Importers								
China	0.3	0.2	0.7	1.1	1.5	1.9	2.3	2.7
Eastern Europe	2.2	1.5	1.8	2.0	2.2	2.4	2.6	2.8
European Community	3.3	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Japan	16.7	16.7	17.3	17.7	18.1	18.5	18.9	19.3
USSR	8.4	16.5	13.0	13.7	14.4	15.1	15.8	16.5
Subtotal	30.9	37.7	35.6	37.3	39.0	40.7	42.4	44.1
Rest of World	26.0	27.1	29.5	29.0	29.9	30.3	30.7	31.9
Total	56.9	64.8	65.1	66.3	68.9	71.0	73.1	76.0

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTES: The world corn trade year begins in October; for example, the 1988 trade year runs from October 1988 through September 1989.

European Community trade excludes trade within the EC.

TABLE A-2. WORLD WHEAT TRADE ASSUMPTIONS IN THE CBO BASELINE (By trade year, in millions of metric tons)

	Actual	Projected						
	1987	1988	1989	1990	1991	1992	1993	1994
Exports								
United States	43.4	40.8	37.1	38.9	40.1	41.0	42.3	43.4
Major Competitors								
Argentina	3.8	4.8	6.1	6.4	6.7	7.0	7.3	7.6
Australia	12.2	11.5	12.0	12.3	12.6	12.9	13.2	13.5
Canada	23.6	12.4	15.8	16.9	18.9	20.3	21.2	22.4
European Community	15.3	18.5	20.0	18.0	17.0	16.5	16.5	16.5
Subtotal	54.9	47.2	53.9	53.6	55.2	56.7	58.2	60.0
Rest of World	7.2	7.5	6.0	6.0	6.0	6.0	6.0	6.0
Total	105.5	95.5	97.0	98.6	101.3	103.7	106.5	109.4
U.S. Share (In percent)	41	43	38	39	40	40	40	40
Imports								
Major Importers								
China	15.0	15.0	14.5	15.0	15.5	16.0	16.5	17.0
Egypt	6.4	6.5	6.7	6.9	7.1	7.3	7.5	7.7
European Community	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Japan	5.7	5.9	6.1	6.3	6.5	6.7	6.9	7.1
USSR	21.5	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Subtotal	50.8	42.7	42.6	43.5	44.4	45.3	46.2	47.1
Rest of World	54.7	52 8	54.4	55.1	56.9	58.4	60.3	62.3
Total	105.5	95.5	97.0	98.6	101.3	103.7	106.5	109.4

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTES: The world wheat trade year begins in July; for example, the 1988 trade year runs from July 1988 through June 1989.

European Community trade excludes trade within the EC.

TABLE A-3. WORLD COARSE GRAIN TRADE ASSUMPTIONS IN THE CBO BASELINE (By trade year, in millions of metric tons)

	Actual	Projected						
	1987	1988	1989	1990	1991	1992	1993	1994
Exports								
United States	53.5	57.0	56.4	57.4	59.7	61.5	63.3	65.8
Major Competitors								
Argentina	5.2	5.7	6.2	6.4	7.0	7.2	7.5	8.1
Australia	2.5	2.9	3.1	3.3	3.5	3.7	3.9	4.1
Canada	4.2	3.9	4.3	4.6	4.9	5.2	5.4	5.7
South Africa	0.6	1.6	1.8	1.9	1.9	1.9	1.9	1.9
Thailand	0.8	2.9	3.2	3.4	3.7	3.9	4.1	4.3
Subtotal	13.3	17.0	18.6	19.6	21.0	21.9	22.8	24.1
Rest of World	16.2	19.5	19.0	18.7	18.8	19.1	19.4	19.8
Total	83.0	93.5	94.0	95.7	99.5	102.5	105.5	109.7
U.S. Share (In percent)	64	61	60	60	60	60	60	60
Imports								
Major Importers								
China	0.6	0.5	1.0	1.4	1.8	2.2	2.6	3.0
Eastern Europe	4.1	4.1	4.4	4.6	4.8	5.0	5.2	5.4
European Community	4.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Japan	22.3	22.7	23.3	23.7	24.1	24.5	24.9	25.3
USSR	10.7	19.5	16.0	16.7	17.4	18.1	18.8	19.5
Subtotal	42.4	50.8	48.7	50.4	52.1	53.8	55.5	57.2
Rest of World	40.6	42.7	45.3	45.3	47.4	48.7	50.0	52.5
Total	83.0	93.5	94.0	95.7	99.5	102.5	105.5	109.7

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTES: Coarse grains include corn, sorghum, barley, and oats. The world coarse grain trade year begins in October; for example, the 1988 trade year runs from October 1988 through September 1989.

European Community trade excludes trade within the EC.

TABLE A-4. WORLD MILLED RICE TRADE ASSUMPTIONS IN THE CBO BASELINE (By trade year, in millions of metric tons)

	Actual	Projected						
	1987	1988	1989	1990	1991	1992	1993	1994
Exports								
United States	2.44	2.20	2.50	2.60	2.66	2.70	2.75	2.78
Major Competitors								
Australia	0.35	0.50	0.45	0.43	0.40	0.40	0.40	0.40
Burma	0.47	0.25	0.30	0.35	0.40	0.45	0.50	0.55
China	1.02	0.54	0.90	1.00	1.00	1.00	1.00	1.00
European Community	0.98	1.07	0.90	0.85	0.80	0.75	0.70	0.65
Pakistan	1.23	0.80	1.10	1.13	1.17	1.20	1.24	1.28
Thailand	4.35	4.78	4.50	4.50	4.55	4.60	4.65	4.70
Subtotal	8.39	7.94	8.15	8.26	8.32	8.40	8.49	8.58
Rest of World	1.90	1.45	1.62	1.78	2.03	2.30	2.57	2.86
Total	12.73	11.59	12.27	12.63	13.01	13.40	13.80	14.22
U.S. Share (In percent)	19	19	20	21	20	20	20	20
Imports								
Major Importers								
European Community	1.15	1.09	1.15	1.05	1.00	0.95	0.90	0.85
Indonesia	0.05	0.10	0.50	0.25	0.30	0.35	0.40	0.45
Iran	1.00	0.45	0.70	0.71	0.73	0.74	0.76	0.77
Iraq	0.55	0.65	0.60	0.62	0.64	0.66	0.68	0.70
Nigeria	0.40	0.30	0.30	0.31	0.32	0.33	0.34	0.35
Subtotal	3.16	2.59	3.25	2.94	2.98	3.03	3.07	3.12
Rest of World	9.58	9.00	9.02	9.69	10.03	10.38	10.73	11.10
Total	12.73	11.59	12.27	12.63	13.01	13.40	13.80	14.22

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTES: The world milled rice trade year begins in January, and is the same as a calendar year.

European Community trade excludes trade within the EC.

TABLE A-5. WORLD COTTON TRADE ASSUMPTIONS IN THE CBO BASELINE (By trade year, in thousands of bales)

	Actual	Projected						
	1987	1988	1989	1990	1991	1992	1993	1994
Exports								
United States (Upland Cotton)	6,350	4,900	6,200	6,210	6,600	6,750	6,820	6,910
Major Competitors								
China	2,322	1,500	1,600	1,700	1,800	1,900	2,000	2,100
Egypt	435	300	350	400	450	500	550	600
Mexico	375	525	575	600	625	650	675	700
Pakistan	2,383	3,200	3,000	3,050	3,100	3,150	3,200	3,250
Paraguay	767	800	700	725	750	775	800	825
Sudan	825	600	650	700	750	800	850	900
Turkey	198	450	475	500	525	550	575	600
USSR	3,417	3,500	3,400	3,300	3,200	3,100	3,000	2,900
Subtotal	10,722	10,875	10,750	10,975	11,200	11,425	11,650	11,875
Rest of World	6,515	8,626	8,183	8,702	8,864	9,289	9,817	10,351
Total	23,587	24,401	25,133	25,887	26,664	27,464	28,287	29,136
U.S. Share (In percent)	27	20	25	24	25	25	24	24
Imports								
Major Importers								
China	86	1,500	300	400	500	600	700	800
Eastern Europe	3,707	3,650	3,675	3,700	3,725	3,750	3,775	3,800
European Community	5,674	5,035	5,085	5,135	5,185	5,235	5,285	5,335
Hong Kong	1,078	1,050	1,100	1,150	1,200	1,250	1,300	1,350
Indonesia	882	240	500	510	520	530	540	550
Japan	3,431	3,200	3,225	3,250	3,275	3,300	3,325	3,350
South Korea	1,960	1,900	1,950	2,000	2,050	2,100	2,150	2,200
Taiwan	1,593	1,700	1,750	1,800	1,850	1,900	1,950	2,000
Subtotal	18,411	18,275	17,585	17,945	18,305	18,665	19,025	19,385
Rest of World	5,176	6,126	7,548	7,942	8,359	8,799	9,262	9,751
Total	23,587	24,401	25,133	25,887	26,664	27,464	28,287	29,136

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTES: The world cotton trade year begins in August; for example, the 1988 trade year runs from August 1988 through July 1989.

European Community trade excludes trade within the EC.

TABLE A-6. WORLD SOYBEAN TRADE ASSUMPTIONS (EXCLUDING MEAL AND OIL) IN THE CBO BASELINE (By trade year, in millions of metric tons)

	Actual	Projected						
	1987	1988	1989	1990	1991	1992	1993	1994
Exports								
United States	21.83	15.35	18.29	18.62	19.13	19.49	19.84	20.30
Major Competitors								
Argentina	2.09	3.50	2.30	2.40	2.55	2.70	2.85	3.00
Brazil	2.60	3.90	2.06	2.59	2.64	2.63	2.62	2.65
Subtotal	4.69	7.40	4.36	4.99	5.19	5.33	5.47	5.65
Rest of World	3.08	3.25	2.75	2.25	2.25	2.25	2.25	2.25
Total	29.60	26.00	25.40	25.86	26.57	27.06	27.56	28.20
U.S. Share (In percent)	74	59	72	72	72	72	72	72
Imports								
Major Importers								
Eastern Europe	0.94	0.84	0.84	0.84	0.84	0.84	0.84	0.84
European Community	13.15	11.97	11.87	11.77	11.67	11.57	11.47	11.37
Japan	4.85	4.75	4.85	4.90	4.95	5.00	5.05	5.10
Mexico	1.00	1.10	1.10	1.10	1.10	1.10	1.10	1.10
South Korea	1.15	1.15	1.20	1.25	1.30	1.35	1.40	1.45
Taiwan	1.90	1.80	1.90	2.00	2.10	2.20	2.30	2.40
USSR	1.50	1.50	1.55	1.65	1.80	2.00	2.25	2.50
Subtotal	24.49	23.11	23.31	23.51	23.76	24.06	24.41	24.76
Rest of World	5.11	2.89	2.10	2.35	2.82	3.01	3.15	3.44
Total	29.60	26.00	25.40	25.86	26.57	27.06	27.56	28.20

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTES: The world soybean trade year begins in October; for example, the 1988 trade year runs from October 1988 through September 1989.

European Community trade excludes trade within the EC.

TABLE A-7. WORLD SOYBEAN MEAL TRADE ASSUMPTIONS IN THE CBO BASELINE (By trade year, in millions of metric tons)

	Actual 1987	Projected 1988	1989	1990	1991	1992	1993	1994
Exports								
United States	6.23	4.08	6.00	6.38	6.50	6.62	6.74	6.86
Major Competitors								
Argentina	4.10	5.45	5.45	5.95	6.45	6.95	7.45	7.95
Brazil	7.35	9.00	9.00	9.25	9.50	9.75	10.00	10.25
European Community	4.10	5.45	4.28	3.65	3.28	2.91	2.54	2.17
Subtotal	15.55	19.90	18.73	18.85	19.23	19.61	19.99	20.37
Rest of World	3.45	1.62	1.37	1.37	1.37	1.37	1.37	1.37
Total	25.2	25.6	26.1	26.6	27.1	27.6	28.1	28.6
U.S. Share (In percent)	25	16	23	24	24	24	24	24
Imports								
Major Importers								
Eastern Europe	3.92	3.50	3.60	3.70	3.80	3.90	4.00	4.10
European Community	12.08	12.30	12.10	11.90	11.70	11.50	11.30	11.10
USSR	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75
Subtotal	19.00	19.05	19.20	19.35	19.50	19.65	19.80	19.95
Rest of World	6.23	6.55	6.90	7.25	7.60	7.95	8.30	8.65
Total	25.2	25.6	26.1	26.6	27.1	27.6	28.1	28.6

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTES: The world soybean meal trade year begins in October; for example, the 1988 trade year runs from October 1988 through September 1989.

European Community trade excludes trade within the EC.

TABLE A-8. WORLD SOYBEAN OIL TRADE ASSUMPTIONS IN THE CBO BASELINE (By trade year, in millions of metric tons)

	Actual	Projected						
	1987	1988	1989	1990	1991	1992	1993	1994
Exports								
United States	0.86	0.59	0.76	0.80	0.82	0.84	0.87	0.90
Major Competitors								
Argentina	0.84	1.13	1.13	1.16	1.21	1.26	1.31	1.36
Brazil	0.62	0.80	0.80	0.82	0.86	0.89	0.93	0.96
European Community	1.22	1.00	1.00	1.00	1.01	1.02	1.02	1.03
Subtotal	2.68	2.93	2.93	2.99	3.08	3.16	3.25	3.35
Rest of World	0.15	0.14	0.10	0.10	0.10	0.11	0.12	0.13
Total	3.69	3.66	3.79	3.88	4.00	4.12	4.24	4.37
U.S. Share (In percent)	23	23	20	21	21	21	21	21
Imports								
Major Importers								
China	0.38	0.38	0.39	0.40	0.41	0.42	0.43	0.44
European Community	0.41	0.40	0.40	0.40	0.40	0.40	0.40	0.40
India	0.40	0.25	0.50	0.50	0.50	0.50	0.50	0.50
Pakistan	0.43	0.38	0.40	0.40	0.40	0.40	0.40	0.40
Subtotal	1.61	1.41	1.69	1.70	1.71	1.72	1.73	1.74
Rest of World	2.08	2.26	2.10	2.18	2.29	2.40	2.51	2.63
Total	3.69	3.66	3.79	3.88	4.00	4.12	4.24	4.37

SOURCE: Actual data from Department of Agriculture; projections from Congressional Budget Office's February 1989 baseline.

NOTES: The world soybean oil trade year begins in October; for example, the 1988 trade year runs from October 1988 through September 1989.

European Community trade excludes trade within the EC.

GLOSSARY

Acreage Reduction Program (ARP). A program in which producers agree not to plant part of their crop acreage base in the supported crop. Participation is voluntary and unpaid, but producers must participate to receive deficiency payments and other program benefits.

Base Acreage. Acreage that would "normally" be planted to a crop. The crop acreage base is calculated as the average of acreage planted and considered planted to the crop during the past five years and is adjusted each year. Acreage that is considered planted acreage includes land idled under government programs, and land that could not be planted because of natural disaster.

Commodity Credit Corporation (CCC). A wholly-owned government corporation created in 1933 to stabilize and support farm income and prices. Most of the activities of the corporation are carried out by the Agricultural Conservation and Stabilization Service of the U.S. Department of Agriculture. CCC activities are financed through borrowings from the U.S. Treasury and appropriations made to reimburse it for losses realized in its operations.

Conservation Reserve Program (CRP). A long-term land retirement program. Landowners receive annual rental payments and assistance in putting an approved vegetative cover on the land in exchange for agreeing to devote the land to conserving uses during the 10-year term of the contract.

Crop Year or Marketing Year. The 12-month period beginning around harvest time, during which a crop is marketed. The wheat crop year begins in June, the rice and cotton crop year in August, and the corn and soybean crop year in September. The crop year is identified by the calendar year in which the crop is harvested. The 1988 wheat crop, for example, is harvested during calendar year 1988, even though most of it was planted during the fall of 1987. The 1988 wheat crop year, therefore, extends from June 1988 through May 1989.

Deficiency Payment. A direct payment made to participating producers when the average market price falls below the target price for the crop. The total deficiency payment, which can be paid in a combination of generic commodity certificates and cash, equals the product of the producer's planted acres, program yield, and the deficiency payment rate. Generally, the deficiency payment rate equals the difference between the target price and the greater of the market price or the nonrecourse loan rate.

Several types of deficiency payments are made. *Advance deficiency payments* are made when producers sign up for a program (usually prior to planting) and are up to 50 percent of the estimated total deficiency payment. *Regular deficiency payments* are made roughly midway into the marketing year--after five months of price information has been reported for wheat, feed grains, and rice and after the preceding calendar year's price is known for cotton. The *"Findley" deficiency payments* are final payments in wheat and feed grains that are made after the average price for the entire marketing year is known. The regular deficiency payment rate is the difference between the target price and the greater of the five-month price (or calendar year price in cotton) and the basic nonrecourse loan rate. The Findley deficiency payment rate is the amount by which the basic loan rate exceeds the higher of the season average market price or the adjusted loan rate.

Findley deficiency payments are not subject to the payments limitation that applies to other deficiency and diversion payments.

Export Enhancement Program (EEP). A program offering subsidies, in the form of generic commodity certificates, to allow U.S. agricultural commodities--mostly wheat--to be sold to certain foreign purchasers at prices below U.S. market prices. The program was designed primarily to compete directly with European Community subsidized grain sales.

Farmer-Owned Reserve (FOR). A storage program designed to ensure adequate stock levels to dampen sharp price movements in wheat and feed grains. Farmers receive extended nonrecourse loans and place their grain in storage, usually on their own farms. The CCC makes annual storage payments. Farmers can remove their grain from

storage when market prices reach specific "release prices" or grain can be exchanged for generic commodity certificates.

Findley Deficiency Payment. *See* Deficiency Payment.

Generic Commodity Certificates. Negotiable, dollar-denominated certificates received by CCC program participants in lieu of cash payments. Generic certificates can be used to redeem outstanding nonrecourse loans, exchanged for CCC-owned stocks, or, in some cases, exchanged for cash.

Marketing Loan Program. A program in which a producer may repay a nonrecourse commodity loan at a per-unit rate that is lower than the rate used to compute the value of the loan when granted. For example, a rice grower can place one hundredweight (cwt) of rice under loan and receive the nonrecourse loan rate of $6.80. If the world market price, adjusted to the farm level, were less than $6.80 per cwt, say $5.00, then the producer could satisfy the terms of the loan and regain clear title to his crop by paying $5.00 to the CCC. Marketing loans protect farmer returns while reducing or eliminating the price-supporting function of the nonrecourse loan program.

Marketing Year. *See* Crop Year.

Nonrecourse Loan. A loan offered to producers participating in CCC programs for wheat, feed grains, soybeans, cotton, rice, and honey. When the loan is made, the producer's crop is pledged as collateral and the total amount of the loan equals the amount of crop pledged times the *Nonrecourse loan rate.* These are nonrecourse loans because the commodity can be forfeited to satisfy fully the loan even if its market price has fallen below the nonrecourse loan rate. Producers can repay their loans with cash or, effectively, with generic commodity certificates. The *basic loan* rate is largely specified in the law. The *adjusted loan rate* in wheat and feed grains is the final rate used and may be below the basic rate. The Secretary of Agriculture may set the adjusted rate up to 20 percent below the basic rate.

Paid Land Diversion Program (PLD). Similar to an Acreage Reduction Program except that participants are paid for the land removed from production of the program crop. Under current law, participation is

not required for producers to receive deficiency payments and other program benefits.

Payments Limitation. The limitation on the annual amount of farm program payments (excluding loans) that can be received by any individual. The current limitation is $50,000 per "person." A "person" can be an individual or a corporation. An individual can receive up to $100,000 by receiving $50,000 as an individual and $25,000 each as a 50 percent shareholder in a maximum of two corporate entities. This maximum can be achieved only by operators of relatively large farms who are actively engaged in farming and have organized their farm businesses to maximize benefits. Marketing loan benefits and deficiency payments made as a result of lowering the loan rate below the basic loan rate (Findley payments) are not subject to the limitation. A separate $50,000 limit applies to Conservation Reserve Program rental payments.

Posted County Price (PCP). A price used to convert the dollar-denominated generic certificates into quantities of commodity. PCPs are set for each county based on actual prices in certain major grain markets, such as Kansas City, Portland, and Chicago.

Program Yield. A yield figure assigned to each farm and used to calculate program payments. Current program yields are calculated as the average of program yields during 1981 to 1985, with the high and low years removed.

Release Price. *See* Farmer-Owned Reserve.

Target Price. A price level established by law to calculate deficiency payments for wheat, feed grains, cotton, and rice.

50/92 and 0/92. Provisions in the farm law allowing producers to receive 92 percent of their deficiency payments even though they plant as little as 50 percent of the acreage permitted to be planted in the crop program (in 50/92) or even though they do not plant any of the program crop (in 0/92).

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